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III—HUMAN DIABETES MELLITUS

Up to, and for some time after, the discovery of insulin it was tacitly assumed that all cases of human diabetes could be explained by deficiency of insulin, but during the last decade suspicions have arisen regarding the correctness of this assumption. These suspicions had their origin in clinical experience which compelled the realisation that the efficiency with which insulin acts in different patients, and in the same patient in different states of health, varies considerably. This disclosed the possibility that a state of diabetes might result from inefficient action of insulin as well as from lack of insulin.

DIFFERENTIATION INTO TYPES

Most important clinical observations have been made in this field by Falta and his colleagues.[40 41] Using four different tests Falta claims to have differentiated diabetes into two types: (1) the insulin-sensitive type, which requires little insulin to prevent the excretion of many grammes of urinary sugar, tolerates little or no increase in insulin dosage without showing hypoglycæmic symptoms, and reacts to withdrawal of treatment by profuse glycosuria; and (2) the insulin-resistant type, which requires many units of insulin to deal with each gramme of urinary sugar, tolerates many units of insulin above the dose required to keep the urine free of sugar, and on cessation of treatment shows little or no glycosuria. The response to the tests does not, however, permit a clear differentiation of diabetics into two groups, and most cases occupy an intermediate position between the extreme insulin-sensitive and the extreme insulin-resistant patients.

The work, previously discussed, on the effect of dietetic variations on insulin action demonstrated that the efficiency with which insulin acted depended on the factor of insulin-sensitivity, and this suggested the possibility of a type of diabetes due to insensitivity to insulin. It was speedily found that comparison of the effects of injected insulin on the blood-sugar of different diabetic patients was impracticable owing to the influence of the wide variations in the fasting blood-sugar level, and a new test was sought which would overcome this difficulty. This has been found in the application of the observation, previously made on animals [61] and since confirmed on man,[66] that the effect of insulin in suppressing hyperglycæmia due to administration of glucose is determined by the sensitivity to insulin. The insulin-glucose test consists of injecting intravenously a dose of insulin (5 units per square metre of body surface) and immediately afterwards giving a dose of glucose (30 g. per square metre of body surface) by mouth. Blood-sugar estimations are made before, and at short intervals during the first hour after, the insulin and glucose are given. Diabetic patients give two distinct types of response to this test [64] (fig. 7): (1) the insulin-sensitive type, in which the injected insulin comes into action immediately and suppresses the alimentary hyperglycæmia; and (2) the insulin-insensitive type, in which the injected insulin comes into action slowly and weakly and suppresses the alimentary hyperglycæmia to only a slight extent. In the investigation of the significance of these two types of response the insulin-glucose test was compared with the blood-sugar glucose-tolerance curve under the same conditions and after the same dose of glucose.

The blood-glucose tolerance curve can be measured for purposes of comparison by the area enclosed by it and the fasting blood-sugar level. When the blood-glucose tolerance curve and the insulin-glucose curve, obtained from the same patient under the same conditions, are drawn on the same graph, the area between represents the effect of the insulin injected in the insulin-glucose test. This area is called the insulin area (I), and the ratio between the insulin area (I) and the glucose-tolerance area (G)—the I/G ratio—is a measure of the sensitivity to insulin of the particular subject. When the I/G ratio is low, the sensitivity to insulin is diminished; when it is high, sensitivity is increased.[66] This ratio has the great advantages that it is little affected by minor experimental errors, and that it allows for the effect of hyperglycæmia in facilitating insulin action. It does not, however, take into account the height of the fasting blood-sugar level at which the tests are performed, and it therefore remains a measure of sensitivity to insulin at a particular blood-sugar level. In insensitive diabetics the average value of the I/G ratio is 0·51 (with a standard deviation of the series of 0·11). The lowest value of the I/G ratio in the insulin-sensitive diabetics is 0·98—i.e., nearly four times the standard deviation distant from the mean of the insulin-insensitive cases. The two groups of cases are, therefore, clearly differentiated and do not merge into each other.[67] Using their own modification of the insulin-glucose test, de Wesselow and Griffiths [31] have stated that all grades of response from a typical sensitive to a typical insensitive may be obtained. This conclusion is due to their modification of the test failing, owing to infrequent blood sampling, to differentiate between the two types of response. The insensitive type of response is clearly demarcated from that of the sensitive type.

When one comes to consider the clinical features of the cases giving the different responses to the insulin-glucose test, it is found that, although there is a typical clinical group of cases giving each type of response, cases clinically atypical are frequently encountered in either group. On the whole the sensitive diabetics tend to be younger and thin and to have a normal blood-pressure and normal arteries, and as a rule their disease is of sudden and severe onset. The insensitive diabetics, on the other hand, tend to be elderly and obese and to have hypertension and arteriosclerosis, and in these patients the onset of the disease is insidious. These two groups of diabetics are identical with the cases typical of the two groups distinguished by Falta's tests,[40 41] and he also has found that cases are frequently met with in one group which clinically are typical of the other group. A clearer clinical distinction of the diabetics giving the two different responses to the insulin-glucose test is found in regard to the reaction of the different groups to treatment. Kerr and I have found, as Falta

* The Goulstonian lectures for 1939 delivered before the Royal College of Physicians of London on March 2, 7, and 9. Lect. I and the first and second parts of II appeared in THE LANCET of July 1, 8, and 15 respectively.

has,[40] that sensitive diabetics easily respond to an overdose of insulin and speedily develop ketosis if treatment is insufficient, whereas the insensitive type can tolerate a relatively large excess of insulin without showing symptoms of overdosage and rarely develop ketosis.

The two groups of diabetics appear to react differently to dietary changes. In the experience

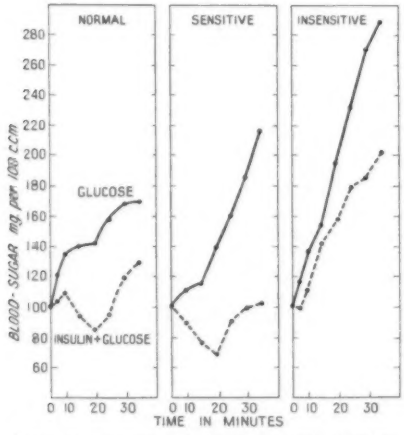

FIG. 7 — Glucose-tolerance and insulin-glucose curves from a normal subject, from an insulin-sensitive diabetic, and from an insulin-insensitive diabetic. The composition of the diet was approximately the same in each case.[67]

of Dr. Kerr and myself increase of dietary carbohydrate in the treated sensitive diabetic produces no increase in glycosuria or insulin requirements, whereas in the treated insensitive diabetic such a change increases glycosuria and consequently increases the insulin requirements.[67] We are in some disagreement with Falta on this point. At first he thought that the effect of carbohydrate in his two groups of diabetics, which we assume to correspond to our two groups, was the reverse of our findings, but recently he has modified his opinion and stated that increase of dietary carbohydrate may not unbalance sensitive diabetics.[40] MacBryde,[89] using Falta's tests, has agreed with Falta's original opinion, but his periods of observation on each diet were too short to allow stabilisation after each dietary change, and his published results, so far as they go, can equally well be interpreted as showing the opposite of what he claims. In support of our findings we have observed that increase of dietary carbohydrate in sensitive cases tends to cause a fall in the fasting blood-sugar and an improvement in the glucose-tolerance curve, whereas in insensitive diabetics the reverse tends to happen. In sensitive cases and in normal subjects increase of dietary carbohydrate produces an increased sensitivity to insulin, as judged by the increase in the value of the I/G ratio, whereas in insensitive patients little or no change in sensitivity takes place.[67] But it has not been possible to change one type of diabetic response into the other by altering the composition of the diet. Card[20] found no effect of variation in dietary carbohydrate on the insulin-depression curve in diabetics. Within the range of dietary variation that he studied little effect would have been discovered even in normal subjects.

Our results on the different effect of diet on the two types of diabetics appear to offer a means of reconciling the two conflicting schools of thought on the dietetic treatment of diabetes. One school maintains that the best results and economy of insulin dosage are obtained with low-carbohydrate diets; the other that better results are obtained with high-carbohydrate diets, and that such diets do not necessitate increase of insulin dosage. If our findings are correct, it is clear that increase of dietary carbohydrate will increase the insulin requirements of insensitive diabetics, whereas in sensitive cases it will cause either a reduction or no change in the insulin dosage. We emphasise, however, that, although insensitive diabetics may require less insulin on a low-carbohydrate diet, this is no proof that such a diet is the optimum for these patients.

The slight effect of insulin in suppressing alimentary hyperglycæmia in the insensitive type of patient may result from one of two causes: an impairment of the action of insulin in accelerating removal of blood-sugar in the peripheral tissues, or a masking of insulin action by excessive secretion of sugar by the liver. In man an indication of the effect of insulin on the peripheral removal of sugar can be obtained by measuring the changes in the capillary-venous blood-sugar difference. It was found by applying this method to the insulin-glucose test that in the normal subjects and sensitive diabetics insulin greatly accelerated the rate at which the peripheral tissues removed sugar from the blood, whereas in the insensitive patients little acceleration of the rate of removal resulted.[64] This work has been confirmed by Marble.[99 100] Griffiths[51] finds the peripheral effect of insulin reduced in all diabetics but more so in insensitive than in sensitive cases. It appears, therefore, that in the sensitive diabetic, as in the normal subject, insulin increases the removal of sugar from the blood by the peripheral tissues, whereas in the insensitive diabetic this action is impaired.

The question now arises as to what is the essential difference between the two types of diabetics. In the insulin-sensitive diabetic administration of insulin turns the diabetic sugar-tolerance curve into an essentially normal insulin-glucose curve (fig. 7), and this suggests that the disease in this type of case is due to lack of insulin. Supporting this conclusion is the apparently normal action of insulin in the peripheral tissues of sensitive patients, their rapid clinical response to insulin and the demonstration, by the I/G ratio, that such cases behave as would be expected were there a deficiency of insulin.[67] In the insensitive cases, on the other hand, the insulin-glucose response suggests some interference with the action of insulin, and the low values of the I/G ratio show that these cases are less sensitive than normal to injected insulin. Further, the impairment of insulin action in the peripheral tissues has been demonstrated, and from theoretical considerations it has been shown that the quantitative effect of insulin in such cases is such as would be expected were the disease due not to lack of insulin but to insensitivity to insulin[67] (fig. 8).

Up to this point we have been considering only the events during the first hour of the glucose-tolerance and insulin-glucose curves—i.e., the rate at which the injected insulin comes into action rather than the total effect. If the curves are prolonged to three hours, the change in the insulin area indicates the total effect of the injected insulin. In sensitive diabetics and normal subjects insulin action is strong

during the first hour and has diminished considerably by the third hour. In insensitive diabetics, on the other hand, insulin action is relatively weak during the first hour, strong in the second, and only little less in the third. The result is that in the two types of case the total action of insulin differs relatively little, whereas the rate at which insulin comes into action differs considerably.[67] This suggests that insulin is not destroyed more rapidly in the insensitive diabetic, but merely that it comes into action more slowly. Such a conclusion would be compatible with the insulin-insensitivity being due either to the presence of a retarding but not destructive inhibitor of insulin or to the relative lack of an activator or coenzyme of insulin. These possibilities are not mutually exclusive. The fact that the total action of insulin is not grossly different in the two types of cases explains two otherwise puzzling clinical points—namely, that the total insulin requirements in insensitive diabetics are not on the average higher than in the other group, and that, when extra carbohydrate is added to the diet of insensitive patients, the daily increase in glycosuria is only a fraction of the excess ingested.

Some interesting results on the utilisation of glucose in different diabetics have recently been presented by Newburgh and his co-workers,[105] who found that in young thin diabetics the capacity to oxidise glucose was reduced, whereas in elderly obese diabetics the capacity was normal. Diabetics of this latter type are usually insensitive, and observations on the absolute effect of insulin in these latter patients are relevant to Newburgh's results. In the normal subject the effect of insulin on alimentary hyperglycæmia is approximately proportional to the

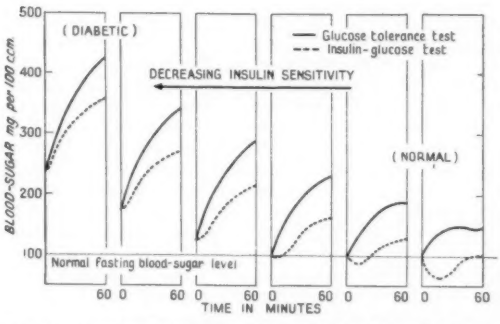

FIG. 8—A series of diagrams showing the effect of decreasing insulin-sensitivity on the blood-glucose tolerance curve and the insulin-glucose curve. The series depicts responses grading from those of a normal subject to those of a frank insulin-insensitive diabetic.

degree of hyperglycæmia on which it acts when insulin sensitivity is kept constant by giving a diet of the same composition. In insensitive diabetics receiving the same diet this proportionality breaks down; but the amount of blood-sugar removed by insulin in insensitive patients remains in most cases practically the same as in normal subjects despite the increased hyperglycæmia on which the insulin is acting (fig. 8). Thus at hyperglycæmic levels the effect of insulin on the majority of insensitive diabetics is approximately the same as at lower levels in normal subjects. This indicates that the elevation of the blood-sugar in insensitive diabetics is adequate to compensate for the diminished ability of the tissues to deal with carbohydrate under the influence of insulin. It is not improbable that, when the disease is thus compensated, the ability to oxidise ingested carbohydrate is only slightly impaired. The relatively mild clinical course in such patients is readily understandable on the basis that in them diminished ability to deal with carbohydrate is largely compensated. In the sensitive diabetic, in whom disease is thought to be due to lack of insulin, the situation is different. Diminished ability to deal with carbohydrate consequent on lack of insulin appears usually to be more severe than when this disability is due to insensitivity to insulin, and consequently adequate compensation often is not achieved. In the absence of adequate compensation it is not surprising that the ability to oxidise ingested carbohydrate is impaired, and that the clinical course in such patients is severe and if untreated ends rapidly with death in diabetic coma.

NATURE OF INSENSITIVITY TO INSULIN

The diabetes developing in acromegalics [44] and in cases of Cushing's syndrome [67] is of the insulin-insensitive type as judged by the insulin-glucose test. The following case illustrates the extreme degree of insulin insensitivity in such cases and its apparent amelioration by X-ray irradiation of the pituitary gland.

A woman aged 40, a patient of Dr. Charles Miller, presented a classical picture of Cushing's syndrome, and she had had mild diabetic symptoms during the previous nine months. A total dose of 25 units of insulin daily was sufficient to clear the urine of ketones, but she still continued to pass large quantities of sugar. Her fasting blood-sugar level averaged 142 mg. per 100 c.cm., and her glucose-tolerance curve was frankly diabetic. The insulin-glucose test was of the insensitive type, the I/G ratio being 0·39. X-ray irradiation of the pituitary region was carried out, and the patient rapidly became sugar-free and remained so, even when the dose of insulin was gradually reduced to 5 units daily.

On readmission to hospital ten months later her fasting blood-sugar level, when she was receiving the same diet as previously but no insulin, averaged 102 mg. per 100 c.cm., but her glucose-tolerance curve was still of the diabetic type. Her sensitivity to insulin had, however, increased, with the result that the I/G ratio had risen to 0·67, the normal average for her age-group being 0·86. Concurrently with this improvement in the diabetic condition the blood-pressure fell from an average of 175 mm. to an average of 120 mm. Hg, and menstruation became regular.

Since this time a further course of irradiation has been given, the blood-pressure now averages 105 mm., and she remains sugar-free without taking insulin. In this case, with the institution of measures directed against the hypophysis, the clinical condition improved and concomitantly her sensitivity to insulin increased.

Extracts of the anterior hypophysis produce, when injected into normal animals, a syndrome resembling diabetes mellitus and an insensitivity to insulin. By injection of crude extracts into normal rabbits diabetic sugar-tolerance curves and an insulin-insensitive type of response to the insulin-glucose test can be produced.

Many claims have appeared in the medical journals recently of the isolation from the blood or urine of groups of diabetic patients of substances which antagonised insulin action. None of the claims has received adequate confirmation; some have been refuted. It is of interest that no trace of any substance with the properties found in extracts of the anterior hypophysis can be demonstrated in the blood of animals rendered completely insensitive to insulin by the injection of such extracts. The

single case reported by Glen and Eaton [48] requires notice, however, as of exceptional interest. The patient was a diabetic who was extremely resistant to insulin, and injection of her serum into rabbits produced a state of insensitivity to insulin which resembled in many respects the resistance produced by anterior-pituitary extracts.

ANTERIOR-PITUITARY GLAND AND PRODUCTION OF DIABETES MELLITUS

The most striking work on the production of diabetes since von Mering and Minkowski demonstrated the effects of pancreatectomy has been initiated by Houssay's researches on the anterior-pituitary gland. Houssay early showed that injection of extracts of this gland produced temporarily a diabetic [73] state, and recently Young [140 141] has shown that injection of increasing doses of these extracts into normal dogs produces a state of permanent diabetes. This effect is produced by crude saline extracts of the fresh gland. By fractionation these crude extracts can be separated into two parts: (1) the glycotropic factor, which antagonises the action of insulin but does not produce on injection into normal animals either a rise of blood-sugar or diabetes, and (2) the diabetogenic fraction, which also antagonises insulin but in addition raises the blood-sugar produces ketosis, and on continued injection ultimately leads to permanent diabetes. The sequence of events on injection of the diabetogenic extract is significant. After two or three days glycosuria, hyperglycæmia, and some degree of ketosis appear, but, if the daily dose of extract is not increased, these disappear spontaneously in a further few days. By increasing the dose of extract as soon as the glycosuria begins to fall, a sustained hyperglycæmia and ketosis can be maintained, and after two or three weeks of injection diabetes results. While receiving injections the animal steadily gains weight. If at any time during this period the injections are stopped, the animal reverts to a normal state. The diabetes ultimately produced is severe. Glycosuria, ketonuria, and hyperglycæmia are considerable but easily influenced by the diet. Glycosuria is increased by carbohydrate administration and decreased by its restriction. Ketonuria is increased by a fatty diet but to a greater extent by a protein diet. These diabetic dogs can live for long periods without insulin, but, if insulin is given and then suddenly withdrawn, death in coma may result. Biopsy and autopsy specimens of the pancreas show degeneration of the islets of Langerhans, [112] and Best and Campbell [12] have found no appreciable quantity of insulin in the pancreas of such animals.

Perhaps the most important aspect of Young's work lies in its having suggested a new principle in pathology. He has shown that injection of extracts which in single doses produce transient diabetes may, if repeated during a relatively short time, produce permanent diabetes. The possibility is thus raised that a short period of over-function in an endocrine gland may lead to a permanent derangement of body function, and that this derangement may be, at least in part, due to lesions of a second endocrine gland. If this be so, the failure to demonstrate excess of anterior-pituitary factors in established cases of diabetes mellitus or of Graves's disease may be explicable, although it is possible that such factors may be demonstrable during the period when the disease is developing.

It is of interest to consider Young's experimental diabetes and the clinical diabetes associated with known lesions of the anterior-pituitary gland. A case has previously been reported of a woman suffering from diabetes mellitus and Cushing's syndrome in whom the diabetes was alleviated by X-ray irradiation of the pituitary region; but this desirable result is not always obtained, and as an example of this failure the following case may be cited.

The patient, a woman aged 46, was known to have had glycosuria, hypertension, and amenorrhœa for the previous eight years. On examination she was seen to be red-faced and fat, especially on the trunk, and had a few cutaneous striæ on the lower abdomen. Her sugar-tolerance curve showed definite but moderate diabetes. Several courses of X-ray treatment to the pituitary region produced a fall in blood-pressure from 270 mm. to 180 mm. Hg, lasting six months, but the glycosuria steadily increased, with the result that now she requires insulin.

It is possible that this case may have been due to suprarenal cortical tumour, but the fall in blood-pressure, when the pituitary region was irradiated, gives some weight to the opinion that the pituitary gland was concerned in her condition. The different result in each case of irradiation may perhaps be explained as follows. In the first case the irradiation was given before diabetes was established at a time corresponding to the period of injections in Young's dogs. In the dog cessation of injections at this stage allows the metabolism to return to normal; in the patient at a similar stage restriction of secretions of the diabetogenic factor by the hypophysis would, if it occurred, be expected to produce a similar result. In the second case irradiation was not given until the diabetes was established at a time corresponding in Young's dogs to the stage when injections have ceased and permanent diabetes with lesions of the islets of Langerhans has been established. It has been noted already that cases of diabetes mellitus associated with hyperpituitarism are insulin-insensitive. During the period of injections Young's dogs are also insensitive to insulin, but after permanent diabetes is established they are apparently insulin-sensitive.[142] Whereas the diabetes of these animals during the injection stage may be due to antagonisation of endogenous insulin by pituitary factors, it is clear from the lesions in the pancreas that the permanent diabetes is due, at least in part, to insulin deficiency.

That the pituitary plays a secondary rôle as a factor in the compensatory mechanism seen in all types of diabetes has already been emphasised, but the indictment of the pituitary gland as a primary factor in ordinary human diabetes rests as yet purely on analogy. In the case of insulin-insensitive diabetes this analogy is suggestive. Insensitivity to insulin is characteristic of this type of diabetic, and insensitivity to insulin is produced by extracts of the anterior hypophysis.[23 73 141] By injection of such extracts into normal animals glucose-tolerance and insulin-glucose curves can be produced which are similar to those of insensitive diabetes.[65] The variations in insulin-sensitivity resulting from dietary changes are mediated at least in part by the hypophysis.[68] The observations that such dietary changes produce little if any effect on the sensitivity to insulin of insensitive diabetics might be expected if the disease in these patients were due to unrestrained oversecretion of the hypophysis. Young's experiments very much suggest that over-secretion of pituitary factors may produce diabetes, but there is no evidence that the pituitary gland is responsible for the continuance of the diabetic state in his animals after they have ceased to receive injections. At present the situation appears to be

that, although there is evidence that the pituitary gland may be responsible for the diabetes associated with hyperpituitarism, there is as yet no proof that this gland plays a primary part in the mechanism of other cases of diabetes mellitus.

PATHOGENESIS OF DIABETES MELLITUS

It is definitely established that heredity [79] plays a part in the production of human diabetes mellitus, and there is evidence that obesity [80] precedes the development of diabetes in patients past middle age. The suggestion that there exist two types of human diabetes mellitus raises the possibility that the pathogenesis of the syndrome of diabetes may not be the same in all patients. The insensitive type of diabetes predominates in the older age-group, and it is possibly not without significance that in normal subjects sensitivity to insulin, measured on a standard diet, decreases with age. In young adult life the insulin-sensitivity, measured by the I/G ratio, averages about 1·0, and in few subjects does the value deviate far from this figure. In the middle-aged and elderly the average value falls to approximately 0·8, and the individual ratio ranges more widely. Relative insulin-insensitivity is common in and after middle life, and it is possible to collect observations ranging from mild insensitivity in normal subjects to pronounced insensitivity in definite diabetics.[67] This suggests that an increasing influence of the factors making for insensitivity to insulin may ultimately produce diabetes mellitus. Carbohydrate restriction is established as one of these factors, and it is perhaps possible that the long-continued ingestion of a low-carbohydrate diet may precipitate diabetes mellitus. There is some evidence that diabetics prefer low-carbohydrate diets,[71] and there is considerable evidence that diabetes is common in those countries and in those circumstances in which a low-carbohydrate diet is taken.[63] In explanation of these findings I have suggested that the hereditary predisposition to diabetes mellitus is widespread, and that in predisposed subjects the long-continued ingestion of a low-carbohydrate diet may precipitate the disease.[63] It has been shown that hypophysial activity is concerned in the variations in insulin-sensitivity and glucose tolerance induced by changes in dietary carbohydrate [68]; Young has demonstrated that extracts of the hypophysis can produce diabetes.[140] If it can be shown that dietary changes induce the secretion of those hypophysial factors contained in the diabetogenic extracts, the above suggestion regarding the pathogenesis of diabetes may be justified. But diet is not the only factor influencing insulin-sensitivity. It is probable that sepsis and obesity have a similar influence, and for this reason they also may precipitate diabetes.

SUMMARY

Diabetes mellitus is a disease in which the essential lesion is a diminished ability of the tissues to utilise glucose. The high blood-sugar in diabetes is a controlled and compensatory phenomenon, the object of which is to facilitate the utilisation of glucose by the tissues. This hyperglycæmia is produced by increased activity of the liver, and the anterior-pituitary gland plays a prominent part in forwarding this activity. The diminished ability of the tissues to utilise glucose is referable either to deficiency of insulin or to insensitivity to insulin, although it is possible that both factors may operate simultaneously. Diabetes may be classified, according to which of these disorders predominates, into insulin-sensitive and insulin-insensitive types. Insulin-sensitive diabetes, which is thought to be due to deficiency of insulin, tends to be severe, and in it the diminished ability to utilise carbohydrate is inadequately compensated. Insulin-insensitive diabetes, which is thought to be due not to lack of insulin but to insensitivity to insulin, is generally less severe, and in it the ability to utilise carbohydrate is usually more adequately compensated. Certain extracts of the anterior-pituitary gland produce insensitivity to insulin, and it is possible that the diabetes associated with hyperpituitarism can be explained by oversecretion of the anterior-pituitary gland. The nature of insulin-insensitivity in the ordinary case of insulin-insensitive diabetes has not been definitely established, and the question as to whether the anterior-pituitary gland plays a dominant rôle in its production is still open.

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URETERIC CATHETERISATION IN PYELITIS OF PREGNANCY

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(With Illustrations on Plate)

INFECTION of the urinary tract is a common complication of an otherwise normal pregnancy. This fact is to be anticipated when it is recalled that dilatation of the kidney pelves and ureters, with some degree of urinary stasis, is a normal concomitant of pregnancy.

The association of pyelitis of pregnancy with urinary stasis has been known for many years and since the introduction of intravenous urography has been extensively studied by Baird (1931, 1932), Lee and Mengert (1934), and others. These workers have shown that the upper urinary tract becomes dilated in every pregnancy, the right side being the more dilated in most cases. The dilatation appears to extend upwards from the level of the pelvic brim (figs. X and XI on plate). This change is first noticed between the third and fourth months of the pregnancy, becoming maximal at about the sixth to seventh month, a time at which the onset of infection is frequently observed. A great deal of work has been done in an endeavour to elucidate the factors concerned in these changes, but the exact mechanism remains obscure. It appears that the pressure of the enlarging uterus and the hypotonia of the urinary tract, which results from the hormone changes in pregnancy, must be important features.

In a paper read before the section on genito-urinary diseases at the 67th annual session of the American Medical Association in June, 1916, and later published in 1917, Caulk referred to the successful use of the ureteric catheter in what he called "large infected right renal retentions complicating pregnancy." This method of treatment is now well recognised by urologists, and a series of cases reported by Pugh in 1927 is of interest because his patients were treated by long-continued ureteric drainage and no preliminary medication had been tried. It is our experience that the great majority of patients with pyelitis of pregnancy respond to ordinary medical treatment, and we therefore reserve the use of the ureteric catheter for those cases in which, in our opinion, adequate medical treatment has failed.

The routine treatment we use for these patients consists in complete rest in bed, the patient being given a light diet with as much fluid as can be taken without discomfort. There seems to be no advantage in forcing fluids in a patient who is already greatly distressed, although the fluid intake should not fall below 4 pints in twenty-four hours. In addition, potassium citrate is given in doses of 1 drachm two-hourly for eight doses, and then four-hourly until the patient becomes afebrile. Usually this dose is sufficient to make the reaction of the urine alkaline and to maintain it so. The reaction of a freshly passed specimen of urine should be the main guide to the dose of alkali necessary. This is best given in a simple mixture, such as pot. cit., gr. 60; syr. aurantii, ½ fluid drachm; aq. ad ½ fluid ounce. It is far less nauseating than the more

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complex mixtures. Occasionally diarrhœa or vomiting may result, but this may be alleviated by the use of the sodium salt or the acetate.

This treatment is usually successful, and failure, if it occurs, is often due to inadequate dosage or the use of a nauseating complex mixture. Very rarely excessive vomiting may make the administration of alkali impossible.

During the four years 1934–37 84 cases of pyelitis of pregnancy were admitted to the London Hospital, and of these only 7 required ureteric drainage: 5 on account of failure of alkali therapy and 2 because of excessive vomiting.

TECHNIQUE OF URETERIC CATHETERISATION IN PREGNANCY

In this series of 7 cases nine ureteric catheterisations were carried out and all were done, with a single exception, by one of us (V. W. D.). In one patient (case 6) the second catheterisation was necessary because the first catheter was removed by a nurse when the patient returned to the ward, and in another (case 4) the second catheterisation was performed three and a half months after the first during a recurrence of pyelitis.

In no case was it necessary to use an anæsthetic, but it would be unjustifiable to conclude that catheterisation of the ureter during pregnancy is easy. From the earliest stages the irritability of the bladder makes the patient more intolerant of cystoscopy than usual, and, as pregnancy advances, the alteration in the shape and capacity of the bladder adds to the difficulties, which reach a climax when the head is engaged. When the fœtal head is impacted in the pelvis, the cystoscope is gripped firmly between it and the pubic bone, its freedom of movement is greatly restricted, and any movement is felt with more than ordinary intensity by the patient. It follows that catheterisation of the ureter, particularly in the late stages of pregnancy, should be carried out by the expert only, and it is worthy of note that in one of the cases of this series an unsuccessful attempt at ureteric catheterisation was made several hours before the successful catheterisation. If, therefore, it should ever be necessary for the relatively inexpert to attempt catheterisation in the later stages of pregnancy, an anæsthetic should be given to minimise the difficulties.

When the ureteric orifice has been identified and the catheterisation has begun there should be no difficulty, and the fact that the catheter has reached the renal pelvis will be at once evident from the rapid flow of urine, which is considerably in excess of that from a ureteric catheter of the same size passed into a normal pelvis. In those cases in which there has been a complete block at the pelvi-ureteric junction the flow may be very rapid indeed.

The size of the ureteric catheter passed has no direct bearing on the result, but it is advisable to pass as large a catheter as possible. The sizes used in this series have been 10 and 12. It is of some advantage to use ureteric catheters 10 cm. longer than the standard pattern, in order to have a greater length projecting from the vulva when the upper end of the catheter is in the renal pelvis. Great care must be taken, in withdrawing the cystoscope, to avoid displacement of the catheter. At the end of the operation the catheter is attached to the leg with a piece of adhesive plaster, and the urine is allowed to drain into a bottle.

The catheter was usually left in situ for three or four days. It is our impression, however, that equally good results might be obtained if the catheter remained for twenty-four or forty-eight hours only, although there would perhaps be a slightly increased risk of recurrence when it was removed. It should be removed at once if it ceases to run freely and gentle syringing fails to re-establish the flow.

In this series of cases we have not used therapeutic lavage through the indwelling catheter. The effect of catheterisation and drainage alone was so good that no additional treatment was needed except the continued administration of citrate.

CASE-RECORDS

CASE 1.—A primigravida, aged 19, was admitted with eleven days' history of more or less constant pain in the right side of the abdomen. This was severe enough to prevent sleep and was accompanied by attacks of shivering and profuse sweating. There was no frequency or dysuria. There had been no previous kidney disease.

On *examination* she was a pale ill-looking girl. Temperature 101° F., pulse-rate 114, respiration-rate 24. The uterus was enlarged to the size of a thirty weeks' pregnancy. There was considerable tenderness in the right loin.

Investigations.—The urine contained 1/10 vol. of albumin; the deposit contained many leucocytes,

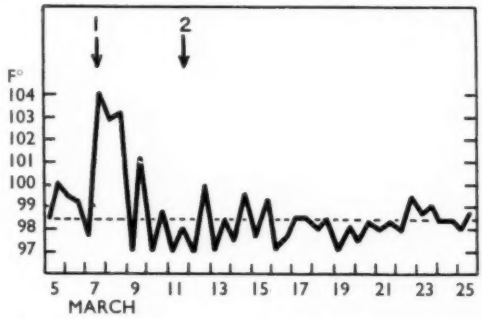

FIG. I—Case 1. Arrow 1, ureteric catheter inserted; arrow 2, ureteric catheter removed.

occasional red cells, and bacteria; and culture produced paracolon bacilli. A blood-count showed 3,600,000 red cells, hæmoglobin 59 per cent., and 17,400 leucocytes (86 per cent. being polymorphonuclears).

Progress in hospital.—Despite alkali therapy for three days her condition became worse. The pain was persistent, and on the third day she had two rigors. On the fourth day a *cystoscopy* was performed and showed that the bladder and ureteric orifices were normal. After the injection of 5 c.cm. of a 0·4 per cent. solution of indigo-carmine intravenously the dye appeared at the left ureteric orifice in four minutes, but none was seen at the right orifice. The right ureter was catheterised, and a very rapid flow of urine resulted, the first blue appearing eight minutes after the injection. There was dramatic relief of pain almost immediately. It is of interest to note that the urine which flowed out was acid, although the bladder urine had been strongly alkaline. The right-kidney urine contained pus and many gram-negative bacilli, and paracolon bacilli were grown on culture. The fever rapidly subsided (fig. I). The catheter was left in situ for four days, the alkaline therapy being continued during and after this time. The average daily amount of urine from the ureteric catheter was 26 oz. During the same time the average amount of urine passed naturally was 29 oz. daily.

Follow-through.—There were no further symptoms, and three months later she was delivered of a healthy child. Three years later she had a second and uncomplicated pregnancy. Two months after the

second confinement she came up for examination. She was completely free from urinary symptoms. The urine was clear, the deposit showed only a few epithelial cells, and a culture was sterile. An excretion pyelogram appeared normal.

CASE 2.—A woman of 23, in her second pregnancy, was admitted with fourteen days' history of pain in the right loin and attacks of shivering and sweating. For four days there had been vomiting and painful frequency. She had had rheumatic fever at the age of 14.

On *examination* she was an ill cyanosed woman. Temperature 102° F., pulse-rate 120, respiration-rate 23. The heart was enlarged, and there was an apical presystolic murmur. The blood-pressure was 120/80. There was no abdominal tenderness. The uterus was enlarged to the size of a twenty-eight weeks' pregnancy.

Investigations.—The urine had a heavy cloud of albumin, the deposit contained many leucocytes, and culture produced *B. coli communis*. The blood-urea was 21 mg. per 100 c.cm.

Progress in hospital.—This patient was treated with alkalis for four days without response. Her condition became more distressed, with right-sided abdominal pain. On the fifth day she was *cystoscoped*, and a normal bladder and normal ureteric orifices were found. After an injection of 5 c.cm. of a 0·4 per cent. solution of indigo-carmine intravenously there was no excretion from either side after eight minutes. The right ureter was catheterised, and there was a good flow of urine, which was acid to litmus. The bladder urine at the time of the examination was alkaline. The right ureteric specimen of urine contained many epithelial cells, pus cells, and bacteria. On culture there was a growth of *B. coli*. The catheter was left in situ for three days, and the average daily amounts of urine from the catheter and bladder respectively during this period were 24 oz. and 32 oz. After the removal of the catheter there was complete relief for two or three days, but then for ten days the patient had occasional discomfort on the right side and slight pyrexia, up to 99·6° F. This lasted for ten days and then settled down completely (fig. II).

Follow-through.—There was no recurrence of symptoms, and five weeks later she gave birth to a healthy male child. Two weeks after the confinement the urine still contained pus and grew *B. coli* on culture. An excretion pyelogram showed delayed excretion and some residual dilatation of the calyces and pelvis in the right kidney, the left being normal. When she was examined three years later the urine was clear

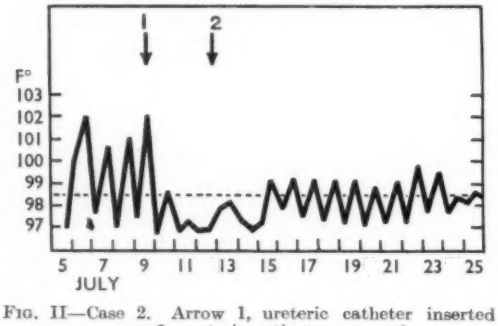

FIG. II—Case 2. Arrow 1, ureteric catheter inserted; arrow 2, ureteric catheter removed.

and the pyelogram was normal except for a little rounding of the right upper calyx. There were no urinary symptoms.

CASE 3.—A primigravida, aged 23, was admitted with four days' history of pain in the right loin, gradually getting worse. She had had several shivering attacks and had vomited once. During the four days she had been ill there had been no increased frequency of micturition, although she stated that during the whole of her pregnancy she had had some degree of painless frequency.

On *examination* she was a pale ill-looking woman. Temperature 99·5° F., pulse-rate 112, respiration-rate 32. There was tenderness in the right loin, and the uterus was enlarged to the size of a thirty-six weeks' pregnancy.

Investigations.—The urine contained 1/6 vol. of albumin, there was pus in the deposit, and culture produced *B. coli communis*. A blood-count showed 5,300,000 red cells, hæmoglobin 74 per cent., and 15,000 leucocytes, of which 85·5 per cent. were polymorphonuclears. The blood-urea was 27 mg. per 100 c.cm.

Progress in hospital.—In spite of alkali treatment for five days the symptoms persisted and the temperature remained high. On the sixth day *cystoscopy* was performed and showed a normal bladder and normal ureteric orifices. There was some œdema of the internal meatus, probably due to the pregnancy. The right ureter was catheterised, and there was a very rapid flow of urine. There is no note about the reactions of the bladder and right-kidney urines at the cystoscopy. The ureteric catheter was left in situ for four days. The average daily amounts of urine from the catheter and the bladder during this period were respectively 32 oz. and 38 oz. The symptoms were rapidly relieved, and on the third day after catheterisation the patient was afebrile (fig. III).

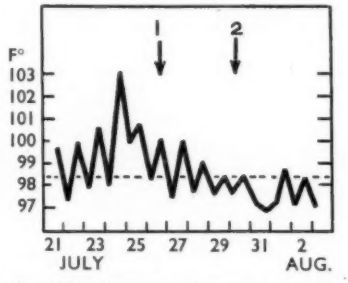

FIG. III—Case 3. Arrow 1, ureteric catheter inserted; arrow 2, ureteric catheter removed.

Follow-through.—She remained free from symptoms and on the eighth day after catheterisation was delivered of a live female child. The puerperium was afebrile until she developed a breast abscess. Three months later she was admitted again, complaining of pain in the right loin and frequency of micturition. There were no abnormal physical signs. Excretion and instrumental pyelograms revealed no abnormality. The bladder urine grew *B. coli* on culture but contained no pus. The right ureteric urine was similar, and the left ureteric urine was sterile. We have been unable to trace this patient since her last admission to hospital in 1934.

CASE 4.—A woman of 23, with one child, was admitted with a three days' history of painful and frequent micturition. On the day before admission she had pain in the right loin, which rapidly became more severe.

On *examination* she was an ill-looking woman. Temperature 103° F., pulse-rate 130, respiration-rate 28. There was great tenderness in the right loin, but the kidney could not be palpated. The uterus was enlarged to the size of an eighteen weeks' pregnancy.

Investigations.—The urine was neutral and contained a cloud of albumin, pus and occasional red cells were found in the deposit, and culture produced paracolon bacilli. A blood-count showed 4,700,000 red cells, hæmoglobin 81 per cent., and 17,600 leucocytes, of which 78 per cent. were polymorphonuclears.

Progress in hospital.—She was treated for fourteen days with large doses of potassium citrate without effect. At the end of the first week a greatly enlarged and tender right kidney was palpable. On the four-

teenth day *cystoscopy* was performed. The bladder and ureteric orifices were normal. The right ureter was catheterised, and there was at once a free flow of urine from the catheter. The bladder and right

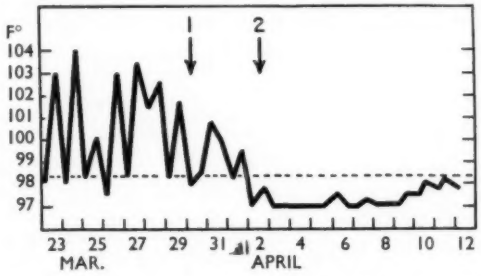

FIG. IV—Case 4. Arrow 1, ureteric catheter inserted; arrow 2, ureteric catheter removed.

ureteric specimens appeared to be equally alkaline. The bacteriological examination showed coliform bacilli to be present in both specimens. The catheter was left in situ for three days. During this period the average daily amounts of urine from the bladder and catheter respectively were 54 oz. and 17 oz. The temperature subsided rapidly (fig. IV), and the condition of the patient improved. She remained free from symptoms and was discharged a fortnight after the ureteric catheterisation.

Three months later she was admitted again. For four days she had had painful and frequent micturition, pain in the back, and vomiting. She was unable to take any medicine owing to the persistent vomiting, and *cystoscopy* was performed on the day after admission. Some difficulty was found in introducing the cystoscope owing to the fœtal head in the pelvis. The right ureter was catheterised, and there was at once a rapid flow of urine from the ureteric catheter. The bladder urine contained thick pus and many red cells, and on culture there was a growth of paracolon bacilli. The ureteric specimen also contained pus and gram-negative bacilli, and paracolon bacilli were grown on culture. The bladder urine was alkaline, and the ureteric urine was acid. The catheter was left in situ until the onset of labour on the fourth day after its insertion (fig. V). A male child was born after a normal labour lasting ten hours. Recovery was uneventful, and the patient left hospital on the thirteenth day after labour.

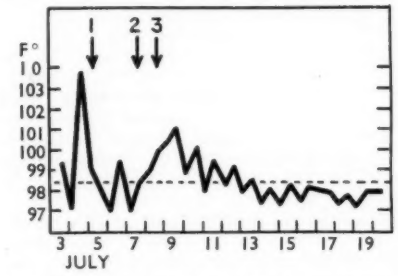

FIG. V—Case 4, on second admission. Arrow 1, ureteric catheter inserted; arrow 2, ureteric catheter removed; arrow 3, patient delivered.

Follow-through.—Two and a half years later this patient had a third pregnancy. This was normal, and there were no urinary symptoms. Three years after treatment in hospital she was well. The urine contained no albumin, there was no deposit, and culture grew *Staphylococcus albus* only. An excretion pyelogram was normal.

CASE 5.—A primigravida, aged 21, was admitted with a three weeks' history of pain in the right loin, which had gradually got worse. For a week she had had pain on micturition, with some terminal hæmaturia.

On *examination* she did not appear to be very ill. Temperature 100° F., pulse-rate 108, respiration-rate 26. The apex-beat was forcible, and there was a well-marked presystolic thrill and murmur. The uterus was enlarged to the size of a twenty weeks' pregnancy, and the right kidney was tender on palpation.

Investigations.—The urine was alkaline and contained 1/5 vol. of albumin, the deposit contained thick pus and many red cells, and culture produced *B. coli communis*. The blood-urea was 51 mg. per 100 c.cm. A blood-count showed 5,120,000 red cells, hæmoglobin 87 per cent., and 22,800 leucocytes, of which 81·5 per cent. were polymorphonuclears.

Progress in hospital.—She was treated with full doses of alkali but continued to feel ill and had irregular pyrexia. Four weeks after admission to hospital *cystoscopy* was performed and revealed a mild cystic trigonitis, without any general cystitis. The ureteric orifices were normal. The right ureter was catheterised. The bladder and ureteric urines were both neutral to litmus. The bladder and right-kidney urines contained pus, occasional red cells, and bacteria, and on culture grew *B. coli communis*. The catheter was left in situ for three days, during which period the average daily amount of urine

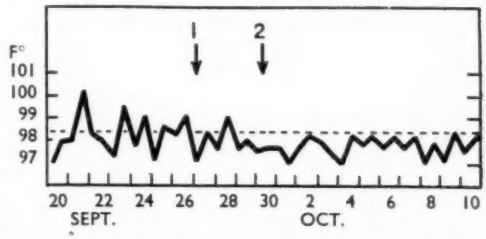

FIG. VI—Case 5. Arrow 1, ureteric catheter inserted; arrow 2, ureteric catheter removed.

from the catheter was 20 oz. and from the bladder 31 oz. The temperature settled (fig. VI), and the patient's condition improved rapidly.

Follow-through.—Three months after catheterisation this patient was delivered of a healthy live female child. She was kept in hospital during this period because of the condition of her heart. Two years later she was well, with the exception of breathlessness due to mitral stenosis and auricular fibrillation. A specimen of urine contained no albumin, the deposit showed epithelial cells, and culture yielded *Staphylococcus albus* only. An excretion pyelogram was normal (figs. XII and XIII on plate).

CASE 6.—A primigravida, aged 22, was admitted with six weeks' history of slight headache in the mornings, nausea, backache, and occasional vomiting. For two weeks there had been painless frequency of micturition.

On *examination* she was a pale ill-looking woman. Temperature 99° F., pulse-rate 88, respiration-rate 24. There was tenderness in the right loin on palpation, but the right kidney could not be felt. The uterus was enlarged to the size of a twenty-six weeks' pregnancy.

Investigations.—The urine was acid and contained a heavy cloud of albumin, the deposit contained many leucocytes and red cells and amorphous urates, and culture produced *B. coli communis*. The blood-urea was 18 mg. per 100 c.cm. A blood-count showed 2,800,000 red cells, hæmoglobin 51 per cent., and 6800 leucocytes.

Progress in hospital.—In spite of prolonged alkali treatment the temperature never settled permanently and the patient's condition did not improve. Six weeks after admission to hospital an attempt was made by one of the surgical first assistants to catheterise the right ureter. This was unsuccessful.

Four days later *cystoscopy* was again performed. Some difficulty was found in manipulating the cystoscope owing to the presence of the fœtal head. Rapid inspection of bladder showed no obvious changes. The right ureter was catheterised and the specimen obtained was faintly alkaline. The catheter was unfortunately removed in error by a nurse when the patient returned to the ward. The catheterisation was then repeated and the catheter left in situ for four days. The bladder and kidney urines contained pus, red cells, and bacteria, and on culture grew *B. coli communis*. The average daily amount of urine from the ureteric catheter was 17 oz. and from the bladder 42 oz. The temperature fell at once after catheterisation (fig. VII), and the patient's condition improved.

Follow-through.—Eleven days after catheterisation she was delivered of a live male child. This case was complicated by a severe degree of anæmia of pregnancy. Two years later she was well and free from symptoms. She was six months pregnant. A catheter specimen of urine contained a cloud of albumin, there were many leucocytes in the deposit, and *B. coli* grew on culture.

CASE 7.—A primigravida, aged 24, was admitted with two days' history of vomiting followed by pain in the right loin. There was frequency but no pain on micturition.

On *examination* she was a healthy-looking woman. Temperature 102·5° F., pulse-rate 120, respiration-rate 24. There was tenderness in the right loin, and the uterus was enlarged to the size of a thirty weeks' pregnancy.

Investigations.—The urine contained 1/3 vol. of albumin, there was pus in the deposit, and culture produced *B. coli communis*.

Progress in hospital.—During the first three days vomiting was excessive, making administration of alkalis impossible. For this reason right-sided ureteric catheterisation was advised. At *cystoscopy* slight general cystitis was found, and the right ureter was catheterised. This procedure was followed by relief of the symptoms in twenty-four hours. The catheter was left in situ for four days (fig. VIII). During the third week in hospital an excretion pyelogram showed a dilatation of the ureters and kidney pelves. This was very obvious in the right kidney, in which one or two calyces showed excretion in the 25-min. film

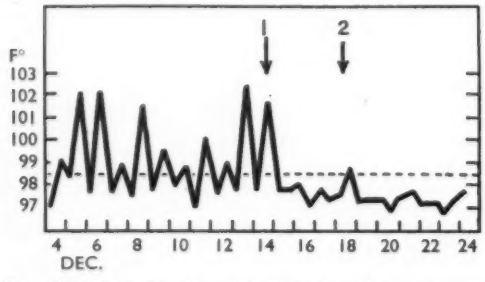

FIG. VII—Case 6. Arrow 1, ureteric catheter inserted; arrow 2, ureteric catheter removed.

only. She was discharged free from symptoms after three weeks in hospital.

Follow-through.—A month later she was delivered of a live female child. She was seen again eleven weeks after the confinement. For the first eight weeks there had been some frequency of micturition, but afterwards she had remained free from symptoms. A catheter specimen contained a few leucocytes and epithelial cells and on culture grew *Staphylococcus albus* only. An excretion pyelogram was normal.

COMMENTS

This small series of cases seemed worthy of report because of the excellent response of a grave condition to a procedure which is simple and without risk in the hands of one experienced in catheterising the ureter. It must be emphasised once more that this treatment is only demanded in rare instances —i.e., when adequate alkali therapy has failed, as in 5 of our patients, or when excessive vomiting makes

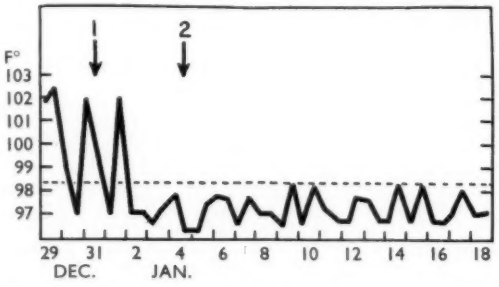

FIG. VIII—Case 7. Arrow 1, ureteric catheter inserted; arrow 2, ureteric catheter removed.

the administration of alkali impossible, as in the remaining 2 cases. The obstruction factor seems to be of importance, and it is improbable therefore that any drug would have given relief without the aid of adequate drainage. It must be pointed out, however, that the sulphanilamide group of drugs was not used. Subsequent experience with this group of drugs leads us to doubt whether they would prove of any value in acute cases which fail to respond to alkali therapy, with the possible exception of those in which excessive vomiting is a factor. It must be noted that the administration of alkali is continued or resumed after the insertion of the catheter.

An analysis of these cases does not reveal anything differing from the "simple" pyelitis of pregnancy. Of our patients 5 were in their first pregnancy and 2 in their second. The stage of pregnancy at which the symptoms first appeared varied between the eighteenth and thirty-sixth week. The duration of symptoms before admission to hospital varied from two to twenty-one days. The right kidney was affected in every instance, and there was tenderness on examination in the right loin. In one patient (case 4) there were two separate attacks, each requiring catheterisation, during the same pregnancy.

The accompanying charts show the efficacy of the treatment so clearly that little comment is necessary. We wish to record that we always observed a rapid and striking improvement in the general condition of the patient after catheterisation. Premature induction of labour was not required in any of our patients, and it is probable that such a procedure should rarely, if ever, be necessary.

It is of great importance in the later management of patients who have had pyelitis of pregnancy, whether controlled by alkali therapy alone or with the aid of ureteric catheterisation, that the persistence of pus in the urine should not be overlooked. In most instances some degree of pyuria will tend to persist until after parturition. Treatment with mandelic acid may clear up such a residual infection successfully, and it should be given a trial in all cases, preferably two or three weeks after the acute phase has subsided. If the pyuria persists throughout the pregnancy, many cases clear up spontaneously after parturition, but, if not, mandelic acid therapy is urgently called for. Calcium mandelate is the preparation which has been most

successful in our hands. Failure to treat such residual infections after parturition may result in "subinvolution" of the urinary tract on the affected side, leading to a persistent hydronephrosis and later pyonephrosis, possibly with secondary calculi (fig. XIV on plate).

With one exception (case 3) we have seen all these patients again at varying intervals after the attack of pyelitis in which catheterisation was necessary. All have remained free from urinary symptoms, and excretion pyelography and examination of the urine have shown no abnormality in 5 of them, although 2 have had subsequent pregnancies. The other patient (case 6) was seen at the sixth month of her second pregnancy, two years after the attack of pyelitis, and, although she was free from symptoms, her urine contained many leucocytes and *B. coli* was grown on culture.

A CASE OF POST-PREGNANCY PYELITIS

Although the following case is not one of pyelitis of pregnancy, previous attacks had occurred during pregnancies, and the result of treatment illustrates so well the method we have described that we have included it as an additional case.

A woman, aged 29, was first seen by one of us (V. W. D.) on March 11, 1938. Her fourth child had been born two months before, and during the pregnancy she had had no trouble, although during her second pregnancy in 1932, after a miscarriage in 1934, and during her third pregnancy in 1935 she had had severe attacks of pyelitis on the right side. When first seen she had an eight days' history of painful and frequent micturition, followed after two days by very severe pain on the right side. In spite of intensive treatment with citrate, she continued to have severe pain, and also had several rigors.

On *examination* she looked ill. Temperature 103·4° F., pulse-rate 96, respiration-rate 22. There was extreme rigidity below the right costal margin and great tenderness on the right side.

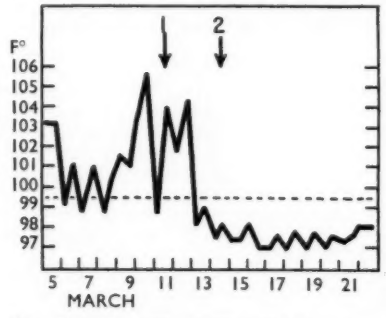

FIG. IX—Post-pregnancy pyelitis. Arrow 1, ureteric catheter inserted; arrow 2, ureteric catheter removed.

Cystoscopy showed no general cystitis. The trigone was a little red and granular. The right ureter was catheterised without difficulty and the catheter was left in. Urine from the bladder contained a cloud of albumin, the deposit contained a small amount of pus, and culture produced *B. coli*. Urine from the right kidney had pus and coliform bacilli in the deposit.

Progress.—On the day following catheterisation it was possible to palpate the kidney easily, although it was still slightly tender. Twenty-four hours later the temperature had fallen, the kidney was no longer tender, and the patient felt well. The catheter was removed on the fourth day, and there was no return of pyrexia (fig. IX).

An instrumental pyelogram and an excretion pyelogram, done about a week later, showed dilatation of the right pelvis, with normal calyces and a very much dilated ureter. This ureter resembled the ureter seen in cases of subinvolution following pregnancy.

SUMMARY

Seven cases of severe pyelitis of pregnancy, and one of post-pregnancy pyelitis, successfully treated by ureteric catheterisation are reported. It is pointed out that this form of treatment is only demanded in those cases which do not respond to ordinary methods of treatment and that careful after-treatment is necessary to avoid persistent urinary infection. Premature induction of labour should rarely, if ever, be necessary, even in severe pyelitis of pregnancy.

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VERTEBRAL FRACTURES COMPLICATING CONVULSION THERAPY

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(*With Illustrations on Plate*)

MEDUNA, who first introduced convulsion therapy of psychiatric disorders, though he admitted that the treatment was severe, claimed that provided his indications and technique were followed carefully no serious danger was involved, and that considering the poor prognosis of the patients the procedure was thoroughly justified. Some authors dismiss the complications in a few lines, referring merely to boils and coryza and temporarily and easily reduced dislocations (Harris 1938). On the other hand, there are now a number of reports of fractures involving the long bones, and in 1938 a case of fractured vertebra was reported by Wespi in Switzerland and another in this country by Stalker.

In America it has lately been suggested that in as many as two-fifths of patients receiving treatment one or more vertebræ are fractured. In April of this year I had the opportunity of visiting the New York State Psychiatric Institute and meeting Dr. Nolan Lewis, in whose department much of the work on vertebral fractures was done. By that time the news had gone round the eastern seaboard of the United States and as a consequence Cardiazol therapy had been all but completely given up in many of the leading clinics.

Since its inception at Woodside in 1937 an increasing number of patients have been given the treatment, and as soon as we learnt of the findings in America we began to get as many of the old patients back for radiography as possible and we radiographed all those remaining in the hospital. This gave us a total of 20 and the very first case examined revealed an almost complete compression fracture of one of the dorsal vertebræ. We subsequently discovered a total of 5 cases with fractured vertebræ in the series of 20 cases. The incidence here was therefore not so great as the Americans have suggested.

Polatin and his colleagues (1939) have excluded the possibility of these fractures existing before

treatment by carrying out routine radiography on all their patients. Nevertheless, it is interesting that in two of the cases in which fractures were found at Woodside there was a history of severe injury. One patient had had a severe fall on a ship some years ago, while the second had been involved in a motor accident within the last six months.

None of the American authors give any clinical history of the patients with fractures apart from the radiological findings. The following is an account of the convulsion in one of our cases.

The patient was a man of 26, suffering from schizophrenia. He was given a first injection of 6 c.cm. of a 10 per cent. solution of cardiazol into the right medial basilic vein. He had a rather long aura. Then the fit began with the patient raising himself to a sitting position. His face blanched and he rotated his eyes and head to the right to such an extent as to make one feel that another half inch would result in his dislocating his neck. At the same time he cried out, and then went back slowly into a tonic contraction, working his legs as if he were riding a bicycle. His jaw opened, the gag was inserted and he bit on it firmly, and his arms went into extensor spasm with the wrists pronated. At this moment a snap was heard, which seemed to come from the patient's back about the level of his first dorsal vertebra. He then passed into the clonic phase, after which there was the usual period of apnœa succeeded by stertor. He then gradually emerged from the convulsion. During the fit a nurse was detailed to hold the patient's legs down firmly from the moment that the cycling movements started. No other restraint was applied.

It is important to mention the form of restraint used, as this may be a factor in the production of fractures. Other reports do not make clear to what extent patients are restrained, but I have the impression that in America restraint is more generally employed than in this country. Actually at Woodside we introduced restraint because we thought it would lessen the likelihood of dislocations and fractures. It may be that by so doing we have produced the only fractures which have happened in our series.

At Woodside the routine has been to give an initial dose of 5 c.cm. of a 10 per cent. solution of cardiazol to all male patients, except to small men where sometimes only 4 c.cm. is given; if this does not produce a convulsion a second dose 1 c.cm. greater is given five minutes later. It is probable, therefore, that in the majority of cases a fit is produced by a threshold dose. In the case described here we wanted to make certain of a fit because the man was not very coöperative, and in the event of failure might have refused further treatment. A dose of 6 c.cm. may have been above this threshold and this may account for the severity of the fit. The importance of not exceeding the minimum effective dose has not been much discussed in literature, but excessive dosage seems worthy of consideration as a cause of fractures.

RADIOLOGICAL FINDINGS

The majority of spinal fractures recorded have been in the 4th, 5th or 6th dorsal vertebra. They are compression fractures and are of all degrees of severity from a severe crush to the slightest chip off the anterior rim, or the radiogram may merely show a thin striate shadow indicating a small crack. They resemble the injuries seen in miners, but they are presumably the result of severe muscular action inducing acute flexion of the spinal column. It would be of much interest to examine the spines of a series of epileptics radiologically to see whether any of them show vertebral fractures. Dr. F. G. Nichols's reports on the radiological findings in our cases were as follows.

CASE 1.—The spine shows a compression fracture in the body of the 6th dorsal vertebra. The body shows compression and splaying out in the anteroposterior view, and the lines of fracture are apparent. In the lateral view the compression is most pronounced in the anterior part of the body. There is no definite evidence of narrowing of the disks above or below. The rest of the spine shows no indication of injury.

CASE 2.—The appearances here are similar to those in case 1, only they affect both the 4th and 5th dorsal vertebræ. The 4th vertebra shows an angular compression, and the 5th complete telescoping of the body, with extensive narrowing and increased density (figs. I and II on plate).

CASE 3.—The lesion involves both the 4th and 5th dorsal vertebræ, with fractures of the anterior borders reminiscent of the appearance in osteo-arthritis, together with slight compression of the bodies (fig. III on plate).

CASE 4.—There is slight compression of the body of the 5th dorsal vertebra with slight irregularity of the anterior part of its upper border which suggests slight fissuring of the bone in this region.

CASE 5.—In the anteroposterior view there is very slight narrowing of the body of the 5th dorsal vertebra. In the lateral view compression of this body is more evident and points to a fracture.

From these X-ray appearances, and from the findings of the American observers, it seems probable that there are three degrees of severity of lesion. In the first a slight fracture is produced in the anterior lip of the body; in the second there is a minor degree of compression with striæ showing the lines of fracture; in the third there may be any degree of compression, and this may show itself in the form of an angular flattening of the apex of the triangle in the lateral view or there may be no angular effect, both the A.P. and lateral view showing an opera-hat fracture due to general telescoping of the body.

PREVENTION

In seeking a method of avoiding fractures we must try to determine whether they are due to unnecessarily large dosage, to keeping the patient under unnecessary restraint or in an unfavourable position during the fit, or whether they are an unavoidable consequence of the technique at present employed. If the third possibility is the true one, we must look for a way of obtaining a full therapeutic effect with more moderate muscular contractions.

It is now thought possible that the therapeutic result is due to temporary anoxæmia, and if we succeed in abolishing the muscular spasm of the diaphragm, intercostal muscles, and possibly the glottis either partially or completely, we shall interfere with the production of anoxæmia, and may render the treatment ineffective. If we reduce muscular spasm below the level of the nerves supplying the diaphragm we shall not affect the anoxæmia, but we shall prevent all danger of fracture below this level, and may indirectly lessen the likelihood of fractures elsewhere.

We have, therefore, the following plans for consideration. First, we may try to influence the whole muscular system, so as to lessen the violence of the contractions during the fit; secondly, we may concentrate on the muscular system below the level of the diaphragm; or, thirdly, we may apply mechanical methods to modify the muscular activity.

Reduction of general muscular contractions could be produced by those drugs which act on the peripheral

neuromuscular mechanism—namely, curare, coniine, gelsemium and sparteine. If these drugs are used, however, their effect on respiration will have to be kept in mind.

Reduction of muscular contraction below the diaphragm can be produced by spinal anæsthesia, and this procedure has been used by Hamsa and Bennett (1939). From half to one hour before the injection of cardiazol they give a spinal injection between the 1st and 2nd lumbar vertebræ of 10 mg. of pontocaine hydrochloride or 100 mg. of procaine hydrochloride dissolved in 4 c.cm. of cerebrospinal fluid. The anæsthesia, with complete sensory and motor paralysis of all thoracic and lumbar segments, wears off about an hour after the convulsion. The fit therefore occurs without contraction of the anæsthetised areas. These authors support the importance of cerebral anoxæmia, and therefore prolong the period of apnœa by holding the patient's mouth and nose tightly closed for from half to one minute after the tonic spasm is over.

Mechanical methods can be of two kinds. The patient can either be placed in a position that will minimise the likelihood of fractures, or he can be so fixed by means of apparatus that movements of the vertebræ are impossible. Both these methods are based on the assumption that the injury is due to a crush. Polatin and his colleagues have tried placing the patient on his side in a position of acute flexion, but they have treated too few patients in this position to assess its effectiveness. Bennett and Fitzpatrick (1939) report that they are considering a modification of the curved Bradford frame, to which the patient can be strapped. A possible objection to this method is that although it may protect the vertebræ it may result in extensive tearing of muscular insertions along spinal axis. They take the view that until the patient can be protected by apparatus or suitable positioning or by some pharmacological method the treatment must necessarily be suspended. But it would be most regrettable if we were to throw over a method of such proved value merely because we have encountered this unexpected and difficult complication.

SUMMARY

Vertebral fractures during convulsion therapy have been reported in 40 per cent. of cases in the United States, and were found in 5 out of 20 cases treated at Woodside Hospital.

The degree of restraint applied during the fit and the dosage employed may be factors in the production of fractures.

Muscular contractions might be reduced (*a*) by drugs acting on the neuromuscular junctions, such as curare; (*b*) by spinal anæsthesia; or (*c*) by suitable positioning of the patient or the use of fixative apparatus.

Convulsion therapy should not be discarded until methods of preventing fractures have been fully explored.

I wish to thank Dr. Noel Harris, physician in charge, Woodside Hospital, for permission to publish these case-records; Mr. Philip Wiles for useful criticism; and Dr. F. G. Nicholas and Dr. J. A. Hobson for their coöperation.

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IMPORTANCE OF BRONCHOSCOPY IN UNRESOLVED PNEUMONIA

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(*With Illustrations on Plate*)

Pneumonia as a rule is a self-limiting disease and it commonly terminates by crisis, which may take place any time between the fifth and ninth days—i.e., there is an abrupt fall in the temperature and the pulse and respiration rates, accompanied by a marked improvement in the general condition. Termination may take place by lysis—i.e., the temperature falls gradually for two or three days with a corresponding gradual improvement in the general condition. Occasionally there may be a pseudo-crisis followed by a true crisis or lysis. After crisis or lysis there is no appreciable change in the physical signs in the lungs for a few days, when gradual resolution in the affected area takes place. Redux crepitations appear, and bronchial breathing becomes less intense and is gradually replaced by normal vesicular breath sounds.

Occasionally the temperature and/or clinical signs persist and the condition is referred to as delayed resolution, incomplete resolution, unresolved pneumonia, or, by Scadding (1937), circumscribed non-suppurative pneumonia.

Within the past two years a considerable number of valuable contributions have been published on pneumonia—particularly in respect to its atypical forms—but in these there has been brief mention of so-called unresolved pneumonia, and, in spite of the term being in almost daily use, published references to the condition are scanty and evasive. It has been said that "few cases diagnosed as unresolved pneumonia are strictly entitled to be placed in that category. The term is in common use for cases of pneumonia which pursue an atypical course after the first seven or ten days, and for others which have been erroneously considered to be pneumonia" (Holmes 1936), and it is to these incorrectly diagnosed cases that we wish to call attention, particularly to the help that can be afforded by bronchoscopy in forming a diagnosis and instituting treatment.

During the past five years we have examined with the bronchoscope 38 patients incorrectly diagnosed as suffering from unresolved pneumonia, 8 of whom were found to be suffering from bronchial carcinoma, 1 from an extrabronchial tumour of unknown pathology, 2 from impacted non-radio-opaque foreign body, 5 from bronchiectasis, 1 from inflammatory stenosis of a bronchus, 2 from lung abscess, 1 from enlarged bronchial glands, and 18 children who exhibited varying degrees of incomplete bronchial obstruction apparently caused by secretion. It may be assumed, therefore, that cases of so-called unresolved pneumonia may be due either to true delayed resolution or to some other intrathoracic lesion which causes symptoms and clinical and/or radiological signs simulating pneumonia.

There is no arbitrary period at which a pneumonia becomes an "unresolved" pneumonia, but if a patient suffering from pneumonia exhibits considerable physical or radiological signs of abnormality in the chest four weeks after the onset of symptoms he may be regarded as suffering from either true unresolved pneumonia or some other complication. It has been our experience that in many cases a differential diagnosis between a true unresolved pneumonia and some other lesion can be made only by direct inspection of the bronchial tree, or by the lapse of time, when possibly irremediable damage has been sustained by the lungs.

INCIDENCE AND DURATION

It has been difficult to collect any accurate figures regarding the frequency and duration of unresolved pneumonia; for, as the term is used so loosely, the available records are not truly comprehensive.

Hollinger (1938) states that true delayed resolution occurs in about 2–3 per cent. of cases of lobar pneumonia.

Howard (1936) quotes the following observers' findings in regard to the frequency of this complication of pneumonia: Osler and McCrae, 3–4 per cent.; Musser and Norris, 4·1 per cent. in 2548 collected cases; McCrae, 3–7 per cent. in 805 collected cases; and Milne reported that he found at autopsy 10 instances of organisation of exudate in 150 fatal cases of pneumonia—i.e., 6·6 per cent. cases of true unresolved pneumonia.

Kohn and Weiner (1936) surveyed a series of 1000 cases of pneumonia in children and report that 800 of these left hospital alive. Of these 800 survivors 318 were discharged with positive physical signs in their chests, and in 421 radiography revealed some degree of infiltration.

Jameson (1929), in a follow-up of 200 cases of pneumonia in children, found that 52 were suffering from severe symptoms of recurrent or chronic pulmonary catarrh—including 14 cases of well-marked fibrosis. There is no doubt that the symptoms of unresolved pneumonia are relatively commoner in children than in adults.

With the kind permission of Dr. W. E. Crosbie, medical superintendent, Dr. B. Dodd has analysed the cases of pneumonia treated in Alder Hey Children's Hospital, Liverpool, during 1934–36, and an attempt has been made to follow up the patients who were considered to be suffering from unresolved pneumonia. The accompanying table shows the figures obtained. In this series of 3117 cases of pneumonia 269 (8·6 per cent.) remained as unresolved pneumonia. Of these 269 cases 75 resolved before discharge from hospital, 5 patients developed empyema, and 6 died. Of the remaining 183 patients only 71 attended for examination, of whom 47 had no signs, 14 had physical but no radiological signs, and 10 had physical and radiological signs. Therefore, excluding the cases not traced, of 157 cases classified as unresolved pneumonia 122 (78 per cent.) had resolved completely and 35 (22 per cent.) still had evidence of some pulmonary lesion. These figures do not include cases originally diagnosed as unresolved pneumonia and in which a later diagnosis of bronchiectasis or lung abscess was made.

INCIDENCE OF UNRESOLVED PNEUMONIA IN CHILDREN

Year	Lobar pneumonia	Broncho-pneumonia	Total	Cases diagnosed as unresolved pneumonia
1934	566	530	1096	70
1935	541	469	1010	105
1936	570	441	1011	94
Total	1677	1440	3117	269

The duration of unresolved pneumonia depends on its cause—i.e., whether it is a true unresolved pneumonia or due to some other lesion.

McCrae followed up 40 cases of unresolved pneumonia, and in all of these there was a complete disappearance of signs and symptoms within twelve weeks.

Kohn and Weiner (1936) attempted to keep under observation 800 children who had suffered from pneumonia, but it was possible only to keep in touch with 66 for nine months or more: 30 cases cleared up completely within five months, the fate of 26 cases is not mentioned, and Kohn (1936) reported on the remaining 10 cases watched over a period of ten years.

He gave a favourable report of these, although 1 patient died, 2 cases resolved after some years, 2 patients had collapsed lower lobes (1 with a cavity), 1 had thickened basal pleura, 1 had a shadow at the hilum and suffered from hæmoptysis off and on for eight years, 2 had physical but no radiological signs after two years, and 1 had physical and radiological signs after four years.

These findings are quoted as probably several of these patients at one time or another were considered to be suffering from unresolved pneumonia.

CLINICAL FINDINGS

For the purpose of these notes and to avoid confusion the definition of terms shown in the following table is employed.

LEGENDS TO ILLUSTRATIVE PLATE

MR. DIX AND DR. EVANS

FIG. X—Excretion pyelogram at the 28th week of pregnancy. Normal dilatation of ureters above pelvic brim. The ureters below the pelvic brim were not dilated.

FIG. XI—Excretion pyelogram at the 30th week of pregnancy in a patient who had pyelitis on the right side.

FIG. XII—Excretion pyelogram on the 13th day after parturition in a patient (case 5) who had had pyelitis.

FIG. XIII—Excretion pyelogram in the same patient as in fig. XII (case 5) two years later, showing return to normal condition.

FIG. XIV—Excretion pyelogram two years after a pregnancy in which there had been pyelitis on the right side. There was still a urinary infection, and subinvolution of the right ureter is well shown.

DR. PALMER

FIG. I—Case 2. Lateral view. Angular compression of 4th and telescoping of 5th dorsal vertebræ.

FIG. II—Case 2. Anteroposterior view.

FIG. III—Case 3. Lateral view: Fractures of anterior borders of 4th and 5th dorsal vertebræ.

MR. McGIBBON AND DRS. BAKER-BATES AND MATHER

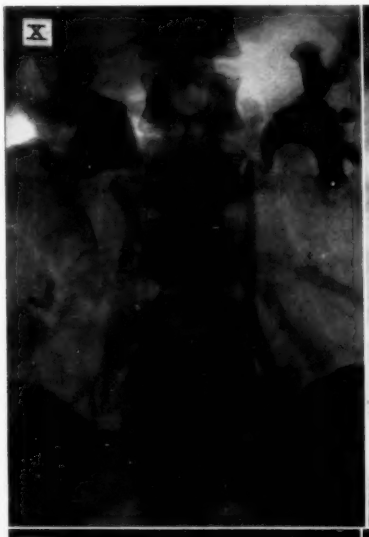
FIG. II—Radiogram typical of incompletely resolved pneumonia.

FIG. III—Radiogram of pneumonitis due to impaction of a foreign body, originally diagnosed as unresolved pneumonia.

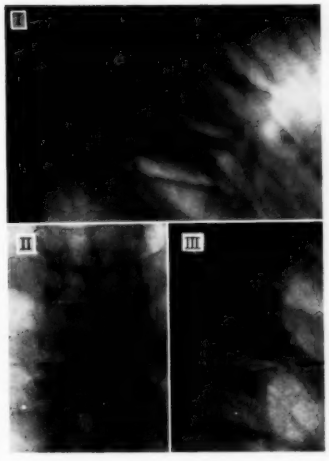
FIG. VI—Radiogram after lipiodol, showing saccular bronchiectasis in right lower lobe (retouched).

(Figs. III and VI are from the same case as figs. IV, V, and VII in text.)

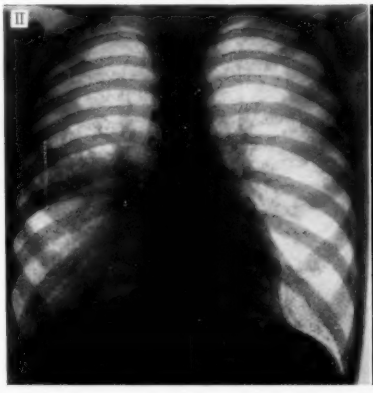
MR. DIX AND DR. EVANS: URETERIC CATHETERISATION

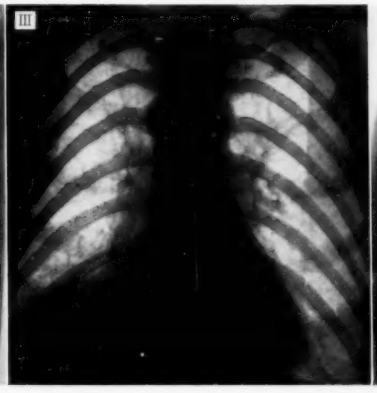


DR. PALMER:
VERTEBRAL FRACTURES

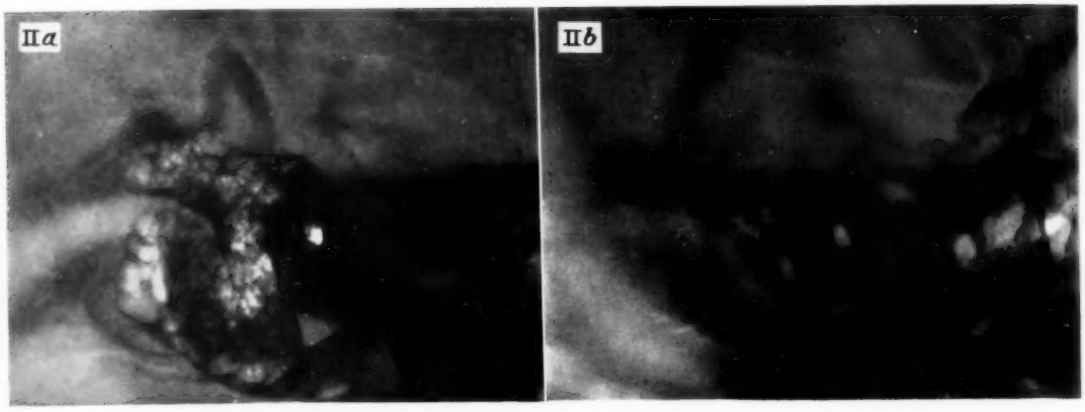


DRS. McGIBBON, BAKER-BATES, AND MATHER: BRONCHOSCOPY IN PNEUMONIA

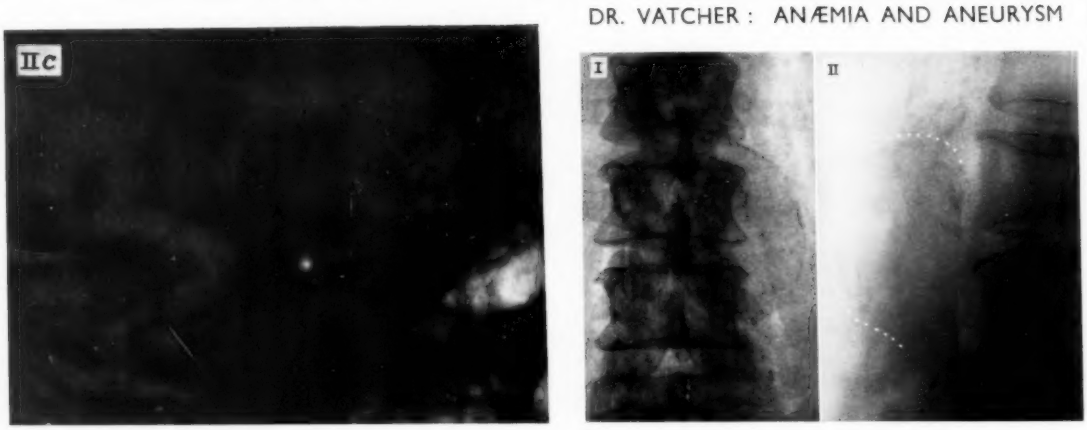




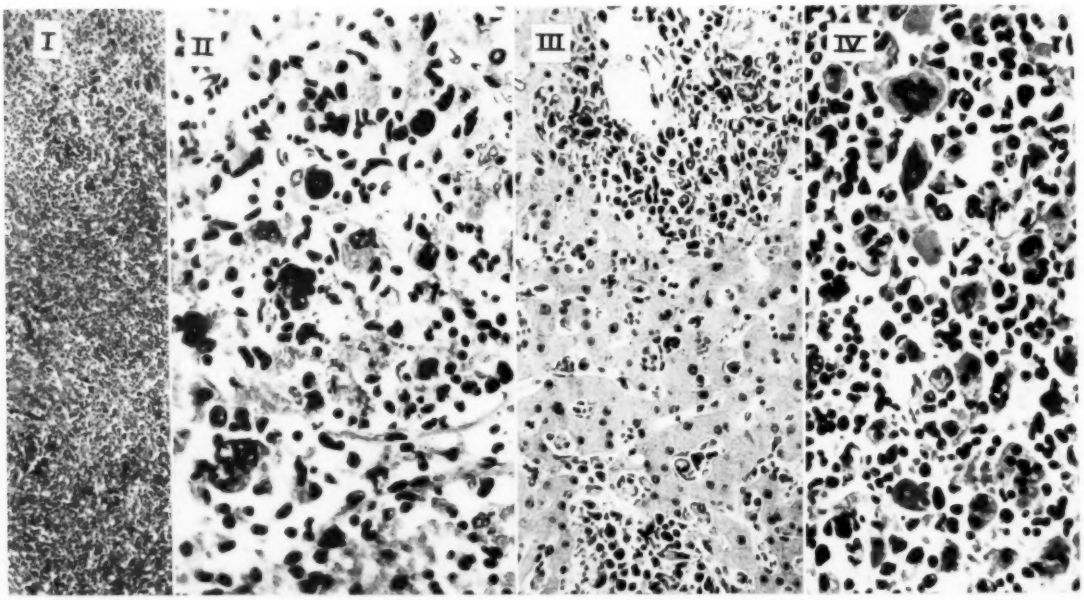
MR. TUMARKIN : SURGICAL CONSERVATION OF HEARING

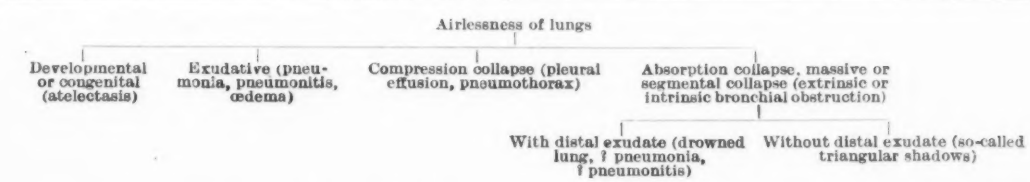


DR. VATCHER : ANÆMIA AND ANEURYSM



DRS. BODLEY SCOTT AND ROBB SMITH : HISTIOCYTIC MEDULLARY RETICULOSIS




Airlessness of lungs
Developmental or congenital (atelectasis)
Exudative (pneumonia, pneumonitis, œdema)
Compression collapse (pleural effusion, pneumothorax)
Absorption collapse, massive or segmental collapse (extrinsic or intrinsic bronchial obstruction)
With distal exudate (drowned lung, ? pneumonia, ? pneumonitis)
Without distal exudate (so-called triangular shadows)

Clinically it is possible to divide cases diagnosed as unresolved pneumonia in our series roughly into four groups:—

(1) Cases simulating true pneumonia in which the expected crisis or lysis did not take place and constitutional and local signs and symptoms persisted.

(2) Cases simulating true pneumonia in which crisis or lysis took place but after a varying interval there was a recrudescence of the general and local signs and symptoms.

(3) Cases simulating true pneumonia which apparently terminated by crisis or lysis but in which local symptoms and signs persisted without any manifest constitutional disturbance.

(4) Ambulatory cases presenting themselves with a variety of pulmonary complaints and manifesting local signs and symptoms of unresolved pneumonia without any history of antecedent acute pulmonary disease.

In groups 1 and 2 the picture has been that of an acute or subacute respiratory disease with cough, sputum, and evidence of general toxæmia. The symptoms depended to some extent on the exact situation of the lesion in relation to surrounding structures. When it was situated in or near a main bronchus, irritating cough and hæmoptysis were common symptoms. At first the cough was unproductive, but later the sputum became copious and purulent, and its odour varied with the infecting organisms. If the lesion was situated near the surface of the lung, pain on breathing was experienced owing to pleural involvement. In other cases there was a much more striking general reaction, with high fever and paroxysmal cough, without sputum at first, but later with a considerable amount of sputum streaked with blood and occasionally offensive. In groups 3 and 4 the symptoms were those of a mild general toxæmia. There were no serious respiratory symptoms or signs on clinical examination, and often the condition was recognised only by radiography of the chest.

Clinical examination yielded very divergent results, for the physical signs varied with the situation and size of the lesion. Partial suppression of breath sounds, associated with dullness and occasional crepitations, was found as often as bronchial breathing in the early stages of consolidation caused by incomplete bronchial occlusion. When the lesion was situated deeply in the lung tissue there were no physical signs, but when the lesion was more superficial there were restriction of movement on the affected side, impairment of the percussion note, bronchial breathing, and crepitations. Vocal vibration was usually increased, and the voice sounds were bronchial. Sometimes the breath sounds were absent and the distinction between consolidation, pleural effusion, and collapse was very difficult to make by clinical examination, for there was usually no displacement of the heart unless there was frank lobar collapse. The important physical sign was the absence of breath sounds, for as a rule there were no added sounds, although crepitations and rhonchi were sometimes heard. It is essential, therefore, to ascertain if there is deficient entry of air into the affected area of lung; such a discovery arising late in the course of a pneumonia should lead to a reconsideration of the diagnosis.

The sputum was always examined for tubercle bacilli as a routine measure on three occasions at least during the acute phase, and the examination was repeated if the clinical course did not go as expected. Empyema was anticipated and excluded by radiography, and any suspected area was explored with a needle.

The cases in this series which presented the greatest diagnostic difficulties on clinical and radiological examination were those with incomplete collapse, especially when the lesion was retrocardiac. Cases conform to the classical description of lobar pneumonia less often than formerly; hence it has been said by the older clinicians that the type of pneumonia has changed. The physical signs of many of the atypical pneumonias are so alike as to render differentiation at the bedside virtually impossible. Hitherto radiography has afforded the main distinguishing features, and attempts to classify these similar clinical states of varying ætiology have been almost all radiological. But, although radiography has clarified the pathology of many pulmonary conditions, the findings should not be regarded as final. They are only to be considered in conjunction with all other aspects of the case and not to the exclusion of further methods of examination.

In this respect so-called "primary" pneumonitis (Gill 1938) is so far merely a radiological conception and is probably due, as Beaumont (Gill 1938) has

LEGENDS TO ILLUSTRATIVE PLATE

MR. TUMARKIN

FIG. II*a*—Pneumatised mastoid; showing "soap-bubble" appearance due to widely ramifying galleries of air cells.

FIG. II*b*—Diploetic mastoid; showing very few air cells.

FIG. II*c*—Compact mastoid. Solid mass of bone showing no air cells whatsoever.

DR. VATCHER

FIG. I—Abdominal aneurysm, anteroposterior view.

FIG. II—Abdominal aneurysm, lateral view.

DRS. BODLEY SCOTT AND ROBB-SMITH

FIG. I—Spleen (× 76). The normal architecture is maintained but the medulla is congested and contains numerous prohistiocyte-giant cells.

FIG. II—Spleen (× 300). Numerous prohistiocytes are to be seen, some of which are giant forms; there is one giant cell of the Reed-Sternberg type in a venous sinus. Many histiocytes showing ingested erythrocytes are present.

FIG. III—Liver (× 180) showing proliferation of prohistiocytes in the periportal tissue and of Kupffer cells in the sinusoids.

FIG. IV—Bone-marrow (× 300) showing the proliferation of prohistiocytes and histiocytes, many of the latter containing ingested erythrocytes.

suggested, to a partial obstruction of the bronchioles with mucopurulent exudate, but its pathology meanwhile is conjectural. It appears to us to correspond to the benign form of pneumonia which sometimes occurs after removal of tonsils; for, as Burrell (1938) has pointed out, the word "pneumonitis" has the same meaning as pneumonia—namely, an inflammation in the lung. Maxwell (1938), in a more recent paper, has emphasised the importance of the recognition of primary pneumonitis as a separate clinical entity and suggests that the term should be confined to cases with good local and general resistance in which the disease runs a benign course.

"Secondary" pneumonitis (Gill 1938) or "secondary" pneumonia (Burrell 1938) is a definite entity and is the local reaction of the lung in response to one of many ætiological factors, usually a low-grade inflammation affecting the alveoli and associated with exudation. A photomicrograph of "secondary" pneumonitis is reproduced in fig. I from a case of inhaled foreign body, and it shows the similarity of the histological picture to that of pneumonia.

A similar criticism can be applied to the clinical term "damaged lung," which was originally introduced by Riviere (1923), and round which the literature has grown to such an extent that the term "damaged lung" is recognised more or less as a diagnosis. Such terms are generalisations and give no hint of the exact causation or pathology of the lesion.

RADIOLOGICAL OBSERVATIONS

In resolving pneumonia radiography shows mottled shadowing in one or more lobes, occasionally accompanied by enlarged root-shadows on the affected side, but without any appreciable collapse of the lung (fig. II on plate). It is advisable, whenever possible, to radiograph every patient recovering from pneumonia; and, if the symptoms or clinical signs persist, the patient must be radiographed again after an interval of seven to ten days. When the shadowing shows no change or has increased, some other lesion should be suspected and further methods of examination should be instituted without delay. If only a single radiological examination is carried out, it is impossible to distinguish between a resolving pneumonia, a true unresolved pneumonia, or pneumonitis secondary to incomplete bronchial stenosis (caused by secretion, non-opaque foreign body, or simple or malignant new growth). The X-ray appearances of resolving pneumonia may be simulated by pulmonary tuberculosis, epituberculosis, and occasionally by bronchiectasis, but in the last condition there is usually some evidence pointing to collapse of the lobe involved—as mentioned earlier, collapse is not a feature of resolving pneumonia.

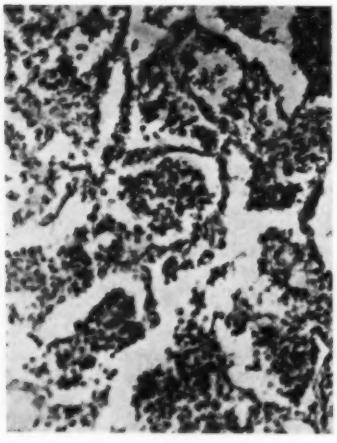


FIG. I—Photomicrograph of lung in pneumonitis due to impaction of a foreign body.

PATHOLOGICAL CONSIDERATIONS

In our series of cases the pathology has been that of interference with bronchial drainage, associated with secondary changes distal to the obstruction. Plugs of secretion, foreign bodies, bronchial stenosis, neoplasm, and pressure of tumours from without have caused the obstruction. All grades of secondary lesions have been found, and these secondary manifestations have varied with the rapidity and cause of the obstruction and with the virulence of the organisms present. The clinical signs and symptoms and the immediate gravity of the illness have depended on the secondary complications, which as a rule completely overshadowed and obscured the primary cause. Rapid obstruction produced partial collapse, which was either lobar or segmental, according to the size of the obstructed bronchus; or, if segmental, neighbouring affected segments became confluent with lobar collapse. If the obstruction took place more slowly, so-called "drowned lung" was brought about.

FIG. IV—Granulation-tissue filling right lower bronchus, as seen on bronchoscopy (same case as figs. III and VI on plate).

CAUSES OF OBSTRUCTION

Viscid secretion was the commonest cause of bronchial obstruction in our series—18 cases out of 38—and the obstruction was usually in the bronchi of the middle or lower lobes. Although bronchial obstruction due to retained secretion was described as an entity nearly a hundred years ago (Thomas 1938), interest in it did not revive until Pasteur (1908) published his papers on pulmonary collapse sixty years later. The latter, however, did not consider that bronchial obstruction due to secretion was the cause of collapse, and it is only within the past ten years that the frequency of secretion as an obstructing agent, its easy removal, and the gratifying results thereby obtained have become generally recognised. The rôle of secretion as an obstructive agent has been emphasised, among others, by the following workers.

Lee and Tucker (1928) showed experimentally that "massive collapse" was due to bronchial obstruction by secretion, and in conjunction with Ravdin and Pendergrass (1928) they produced collapse of the lungs in dogs by inserting into their bronchi plugs of mucus which had been obtained from those of human patients.

Coryllos and Birnbaum (1933) drew attention to the importance of secretion as a cause of bronchial obstruction and noted the extreme viscosity of pneumococcal sputum, which contains fibrin and coagulates very rapidly. They went so far as to define lobar pneumonia as a complication of a pneumococcal bronchitis, caused by bronchial obstruction by exudate infected with virulent pneumococci.

Burrell (1938) also suggested that pneumonia might be caused by plugs of secretion in the bronchi. Gunn (1938) has described the difficulty of infecting laboratory animals by merely spraying broth cultures of pneumococci into the bronchi; whereas, if virulent cultures mixed with mucus, sterile mucin, or viscus starch-paste were injected well down into the bronchi, pneumonia resulted in almost all the cases.

Clinical support of this theory of the pathology of pneumonia is borne out by the observations of Coryllos (1929), who aspirated bronchoscopically 9 cases of pneumonia with beneficial results. Tallerman and Jupe (1929) and other observers have described mediastinal shift to the affected side sometimes seen radiologically in the early stages of the disease.

Erwin and McGill (1938) observed 2 cases of pneumonia with definite clinical signs of a blocked bronchus, and Telling and Oliver (1938) have recorded notes of a case of pneumonia with massive collapse. These last observers point out that complete collapse of a single lobe in lobar pneumonia is commoner than is supposed, and they refer to reports of 62 cases with complete lobar collapse and 10 cases with massive collapse of the whole lung.

Anspach (1934) described 50 cases of pulmonary collapse in children, of which he had investigated all clinically and radiologically and several at autopsy. In the latter he found thick tenacious exudate filling the smaller bronchi. De Bruin and Gerlings (1936) also have published a very full description of collapse of the lung in children due to occlusive secretion, and Maxwell (1937) has described massive collapse of the lung in patients with bronchitis and asthma—one patient was cured by bronchoscopic aspiration of secretion, another coughed up a large plug of mucus with complete relief from symptoms, and the third was cured by breathing exercises.

That this type of bronchial obstruction is common in children is explained by the small lumen of their bronchi, feeble cough, and disproportionately small larynx, which hamper removal of secretion; and it can be appreciated readily that a very slight degree of mucosal swelling of the small bronchial divisions of a child will contribute considerably towards any obstruction. Incomplete collapse of a large part of a lung can occur therefore in young children from very slight causes, and so, when signs of consolidation are found in a young child, the above-mentioned possibilities must be considered.

FIG. VII—Same case. Photograph of bronchiectatic lung removed by lobectomy.

It is now recognised that this kind of obstruction is a precursor of bronchiectasis, and that the permanence and extent of the damage brought about is proportional to the length of time the bronchus remains occluded. We have observed the supervention of undoubted bronchiectasis within a few weeks; Warner and Graham (1933) have reported the development of this complication within six weeks of bronchial obstruction, Boyd (1935) within fourteen days, de Bruin and Gerlings (1936) within seven weeks, and Hollinger (1938), in a description of 3 cases of so-called unresolved pneumonia due to bronchial obstruction by plugs of secretion, saw bronchiectasis become manifest in two months.

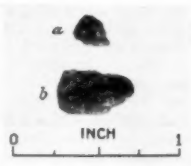


FIG. V—Same case. Photograph of two pieces of bone (life-size) removed from left lower bronchus.

A collapsed lobe with its relaxed bronchi may simulate bronchiectasis by contrast radiography with apparent recovery from the condition on re-expansion of the lobe, as has been pointed out by Chandler (1937), but there is no doubt that recovery may take place in early cases of true bronchiectasis after restoration of the patency of the bronchus. We have seen this take place; Findlay (1935) drew attention to it when discussing bronchiectasis in children; and Jennings (1937) has reported a case which recovered.

Inhaled foreign bodies which are radiologically non-opaque were found in 2 of our cases and gave rise to the picture of so-called unresolved pneumonia, owing to the partial bronchial obstruction produced with secondary pneumonitis and pulmonary suppuration. It is our impression that the entrance of foreign bodies into the bronchi is not so rare as current teaching would have us believe. The effects of a foreign body in the tracheobronchial tree are sufficiently well known and do not need elaboration. The obvious cases are dealt with promptly by the laryngologist, but it is in the obscure cases presenting only signs of pulmonary infection that the true cause is overlooked. It might be supposed that the entry of a foreign body into a bronchus could hardly escape notice. This, however, is by no means true; and, if death does not quickly supervene from pneumonia or gangrene of the lung, the patients may seek advice because of symptoms suggesting the presence of some lesion in the chest, which is in reality secondary to bronchial obstruction by a foreign body. As a general rule the lower down the respiratory tract the foreign body goes, the less the irritation and distress at the time, although this depends also on the nature and mobility of the inhaled object.

The early result caused by the foreign body may be either obstructive emphysema or collapse of part or the whole of the lung. These conditions should be readily recognised clinically and on radiography. If, however, the bronchus is not completely occluded, a secondary pneumonitis will develop which eventually may be regarded as an unresolved pneumonia. Later changes are those due to suppuration of the lung—bronchiectasis, abscess, and gangrene. One case from our series is described below and is illustrated serially in figs. III and VI on plate and IV, V, and VII in text.

On Dec. 23, 1936, a woman of 30 complained of cough and expectoration of seven months' duration with recurrent "influenzal" attacks. Some limitation of movement and crepitations at the right base were evident. On the 29th radiography showed that "appearances point to consolidation—probably unresolved pneumonia of right middle and lower lobes. No evidence of tuberculosis" (fig. III on plate). On Jan. 25, 1937, radiography after Lipiodol showed "normal lipiodol." On the 26th bronchoscopy revealed a mass of granulation-tissue

filling the right lower bronchus (fig. IV), from which a small piece of bone was removed (fig. V).

The patient's symptoms became more severe. There was much cough with copious mucopurulent sputum, and clubbing of her fingers developed. On May 31, 1937, bronchoscopy showed the granulations still present, and a second and larger piece of bone was removed (fig. V). Subsequently her general condition improved, but the cough persisted with purulent expectoration and occasional hæmoptysis. On Dec. 20, 1937, bronchoscopy showed that the granulations had entirely disappeared from the right lower bronchus, but pus was welling up from the basic bronchi. On the 21st radiography after lipiodol showed "saccular bronchiectasis of right lower lobe" (fig. VI on plate). On March 9, 1938, lobectomy was performed by Mr. J. T. Morrison (fig. VII). The patient made a good recovery and has remained well since.

Incomplete bronchial stenosis was found in 1 case. Bronchostenosis is considered to be almost always secondary to impaction of a foreign body, although we consider that we have examined at least one patient in whom a congenital bronchostenosis was present with a small localised distal bronchiectasis. Hollinger (1938) has described a case of so-called unresolved pneumonia which exhibited bronchial stenosis, and Davidson and Freedman (1933) have reported stenosis of the left main bronchus in a woman, aged 43, who gave a history of acute lung disease 25 years previously. Our case was that of a child with stenosis of the right lower bronchus after inflammation.

Bronchial neoplasm is a common cause of bronchial obstruction, and, as Burrell (1938) has pointed out, "the first manifestation may be an acute illness called, and rightly called, pneumonia." In the early stages of bronchial carcinoma there may be no physical or radiological signs of disease. This has been emphasised by two of us in a recent paper (McGibbon and Baker-Bates 1937). Sooner or later, however, bronchial occlusion, transient or permanent, takes place, and some degree of secondary pneumonitis or pulmonary suppuration always occurs distal to the block. This accounts for the diagnosis of unresolved pneumonia which may be made radiologically in the early phases of the disease. There were 8 cases of bronchial carcinoma incorrectly diagnosed as unresolved pneumonia in our series.

Pressure from without the bronchus may be due to many causes, but in our series it has been due to neoplasm or to tuberculous glands. Anspach (1934) has described bronchial obstruction caused by cardiac enlargement and has suggested that it might occur also in Pott's disease or aortic aneurysm. Brook, Cann, and Dickinson (1937) also have described cases due to pressure exerted by tuberculous glands. Such pressure from without produces partial or complete bronchial obstruction, and the end-results are similar to those due to intrinsic causes.

PROGNOSIS

The prognosis in our series nearly always has been serious, but it varied from case to case, and no general rules can be laid down. No patient suffering from unresolved pneumonia with stationary clinical or radiological signs should be treated expectantly; bronchoscopy should be undertaken, for irremediable damage may otherwise take place. Although the lung is normally one of the best-drained organs in the body, once bronchial obstruction develops it is one of the worst-drained, and it has been shown repeatedly that obstruction, complete or incomplete, leads to either pulmonary suppuration—abscess or gangrene—or collapse with an associated bronchiectasis. It is of paramount importance, therefore, to attempt removal of any bronchial obstruction, from whatever cause, at the earliest opportunity, to restore the patency of the bronchus and re-aeration of the lung before these secondary effects supervene.

SUMMARY

(1) A series of cases is reviewed in which the clinical and radiological features suggested unresolved pneumonia but the common lesion was bronchial obstruction.

(2) The importance of early bronchoscopy in conjunction with other methods of investigation is emphasised.

(3) The causes of obstruction were plugs of secretion, foreign bodies, bronchial stenosis, new growths, and extrabronchial pressure.

(4) The common secondary results of bronchial obstruction are pneumonitis, collapse, bronchiectasis, lung abscess, and gangrene. These may be associated with various diseases of the lung or bronchi, and it is important to realise that they are due to other pathological conditions; they should not be regarded as independent diseases.

(5) All patients who have had pneumonia and have any symptoms three or four weeks after the onset should be radiographed. If a diagnosis of unresolved pneumonia, resolving pneumonia, delayed resolution, or incompletely resolved pneumonia is made, radiography should be repeated after ten to fourteen days. If there is then no appreciable change, or if the radiological signs are more obvious, bronchoscopy should be carried out without delay.

(6) Ambulatory cases—group 4 in our series—presenting radiological signs should be radiographed again and treated in a similar manner.

(7) It is only after taking serial radiograms that the radiologist can be dogmatic about the diagnosis of true resolving pneumonia.

(8) The cases which are diagnosed radiologically as "unresolved" or "resolving" pneumonia are those in which there is partial bronchial stenosis with secondary changes distal to it. If there is complete stenosis, there will be evidence of segmental or lobar collapse, which will produce an entirely different radiogram from those in unresolved pneumonia.

(9) The age of the patient must be considered when a diagnosis is sought. In children and young adults true unresolved pneumonia and incomplete bronchial obstruction due to secretion or foreign body are the common causes of symptoms and signs. In adults bronchial carcinoma is the commonest finding.

(10) In the cases described above the pathological changes have been secondary to partial bronchial occlusion, and true pneumonia also may be due to bronchial obstruction. The pathological states found in unresolved pneumonia and true pneumonia may thus be produced by similar mechanical means, and the end-results may differ only inasmuch as the obstructing agents vary.

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SURGICAL CONSERVATION OF HEARING

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(With Illustrations on Plate)

IT has been well said that chronic aural suppuration is a reproach to medical science. Organised coöperation between otologist, medical practitioner, and medical officer of health will undoubtedly abolish this menacing disease someday. Until that day arrives, however, otologists will continue to find most of their time taken up with "chronic ears." The treatment of chronic aural suppuration has a twofold purpose—namely, to preserve hearing and to preserve life, but unfortunately the surgeon is not always able to reconcile the conflicting demands made on him. Of course, in a considerable proportion of cases, conservative treatment will cure the inflammation, and so remove at one stroke both the threat to hearing and the threat to life.*

It is in the remaining cases that the surgeon must make the difficult decision whether to operate or not. Only too often in his anxiety to avert any potential intracranial complications the surgeon is tempted to sacrifice the hearing quite ruthlessly. It has been maintained that in certain cases the radical mastoid operation improves hearing. This is true, but only of patients whose hearing was grossly impaired beforehand. Even so, the improvement is rarely such as to make the ear a really useful one.

Certainly in the type of case which I describe below as chronic perforating epitympanitis, in which the hearing is good beforehand, the classical mastoidectomy will have a disastrous effect on hearing. An American authority writes, "Chronic suppurative otitis media usually begins in childhood. When prolonged into adult life, permanent deafness always results, and operations are then of little or no value in restoration of hearing" (Fowler 1937).

If this gloomy account were accepted as comprehensive and final, we should have to admit that surgery has little or no place in the conservation of hearing. I hope to show in this article that the position is quite different. We can hold out to many of these sufferers a promise of arresting that inexorable descent into the hell of deafness, and indeed can often restore hearing which apparently had been permanently lost. I include, for instance, in my present list several patients who hear now better than they have done since childhood. One man indeed now depends for his livelihood on an ear which for twenty years he regarded as useless.

The fact is that the classical radical mastoidectomy was designed to deal with pan-otitis—a pathological entity which emerged so to speak with the dawn of otology. Chronic otorrhœa as we see it today is rarely due to pan-otitis; it is due to chronic epitympanitis, for which, as I have already said, the classical operation is a disastrous mistake.

Let us recall the surgical anatomy of the ear. We may regard the middle ear as a box of which the wall facing us is partly constituted by the tympanic membrane (fig. I). It is vital for the present argument to remember that the upper part of this wall is bone.

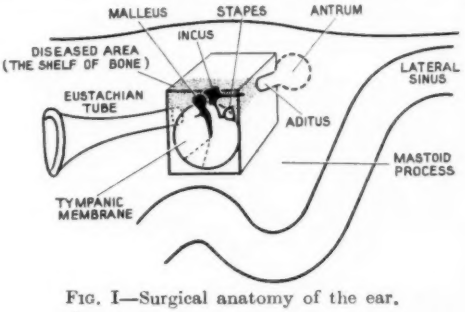

FIG. I—Surgical anatomy of the ear.

The mid-ear space is in fact divided into two parts: the mesotympanum bounded externally by the drum itself, and the epitympanum bounded externally by this shelf of bone. (The corresponding space below—the hypotympanum—has no significance in this discussion.) The epitympanum contains the bodies of both malleus and incus. It is bounded above by the tegmen tympani separating it from the meninges, but posteriorly it communicates by a narrow corridor—the aditus—with the mastoid antrum. The latter is a comparatively large cavity in the body of the mastoid bone, while radiating from it in all directions are galleries of air cells giving the typical pneumatised appearance seen in fig. II*a* on plate.

PAN-OTITIS AND PERFORATING EPITYMPANITIS

In pan-otitis any or all of the following conditions may be found.

(1) The drum is perforated and may indeed be completely destroyed.

(2) Polyps or masses of exuberant granulation tissue spring from patches of unhealthy bone.

(3) The ossicles may be carious, and in some cases completely destroyed.

(4) The mastoid antrum and adjoining air cells may be occupied by unhealthy tissue or mucopurulent discharge.

(5) Fistulæ may erode into adjacent vital structures—the brain, lateral sinus, labyrinth, facial nerve, and so on.

This type of advanced pan-otitis was comparatively common years ago, and the earlier otologists quite rightly dealt with it by means of the radical mastoid operation. This aimed at eradicating all unhealthy tissue, and by converting the whole space into a single cavity it ensured adequate drainage, so averting the dreaded intracranial complications.

* In a small proportion of cases curing the suppuration temporarily diminishes hearing. This can by no means be regarded as justification for neglecting the discharging ear. Such cases are the exception, and furthermore, the suppurating ear will surely deteriorate more rapidly than the dry ear, so that the end-result is invariably worse in untreated cases.

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Within recent years, the picture presented by chronic otorrhœa has changed considerably. Widespread adoption of preventive measures and the all-round improvement in conservative lines of treatment have almost abolished the type of "chronic ear" described above. This subsidence of chronic pan-otitis however has allowed a totally different type of infected ear to emerge and assume its proper importance. I refer to chronic perforating epitympanitis. This condition presents the following remarkable features.

(1) The tympanic membrane may be intact except for a tiny perforation in Shrapnell's membrane or in the post superior quadrant (fig. III). Usually this perforation is occupied (see fig. IV) by a polyp which arises from the diseased area in the attic.

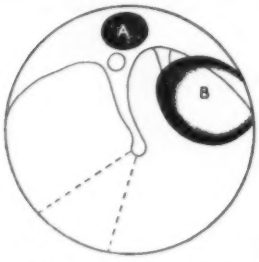

FIG. III—Tympanic membrane showing typical situations of perforations in chronic epitympanitis. A, in Shrapnell's membrane; B, in posterior superior quadrant.

(2) The ossicles may be quite healthy even in cases of twenty years' standing.

(3) The structure of the mastoid bone is quite different from the pneumatised type of fig. II*a*. Usually there are no air cells whatsoever, and the bone is diploetic just like any other cranial bone (fig. II*b* on plate) or it is a solid mass of compact bone (fig. II*c* on plate). This fact is of vital importance to the present argument. It is true that long-standing suppuration in the centre of such a bone can produce osteosclerosis, caries, and even massive necrosis; nevertheless, in the great majority of cases none of these occurs. Such a mastoid bone, like the ossicles and the main part of the tympanic membrane, is quite capable of remaining healthy during ten or twenty years of otorrhœa.

(4) Because of the above factors the hearing is often remarkably good.

(5) Despite its apparently benign features, this condition resists most obstinately the standard conservative measures mainly because the minute perforation effectively prevents the application of dressings to the inflamed lining of the epitympanum.

(6) In those unfortunate cases in which extension to adjacent structures does take place, the process is liable to advance so insidiously that almost the first warnings of its presence may be a fulminating meningitis or sinus thrombosis.

These essential peculiarities of this epitympanitis have never really received adequate recognition, and many surgeons still adhere to the deplorable practice of exenterating the delicate (and often quite healthy) middle-ear structures in their routine performance of radical mastoidectomies for intractable otorrhœa. Obviously in such cases there will be a marked depreciation in hearing. Dan McKenzie (1931), referring to this problem and its solution, wrote:

"Treatment is suggested, namely, in the case of disease limited to this small area and not getting well to remove the thin plate of bone by punch forceps from the meatus so as to provide free exit for the contained debris. As the cholesteatomatous lining may be left in situ, if other symptoms which indicate wider infection are absent, the mastoid route of access is unnecessary. Consideration of this aspect of our subject, however, raises a wider question. In the past when dealing with cholesteatoma the attention of the surgeon has been focused upon the supposed cause of the cholesteatoma, the suppuration of the middle ear, and his efforts have been applied to getting rid of this disease. But, as we have shown, middle-ear disease may be entirely absent. How many hearing ears have been destroyed by this misconception?"

Let us recall that the mesotympanic structures are healthy—i.e., drum and ossicles. The mastoid bone itself is healthy. All we have really to deal with is the focus in the epitympanum, and even this is usually a mere mucosal infection, rather than a true osteitis. In fig. IV I have drawn a longitudinal section of the ear, showing this focus of infection, inadequately draining through a small perforation in Shrapnell's membrane. The perforation, in addition, is blocked by a polyp. The solution to our problem becomes obvious at once. As McKenzie said, all we need do is provide drainage by removing the "plate of bone"—i.e., the outer wall of the attic.

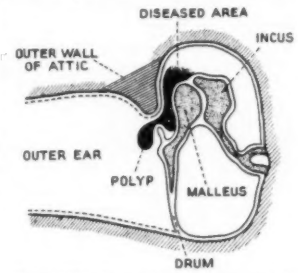

FIG. IV—Chronic epitympanitis showing how removal of the outer attic wall affords room for drainage and the application of medicaments to the diseased area in the epitympanum.

TRANSMEATAL ATTICOTOMY

Why then did no-one carry out the operation? Presumably because surgeons were fixed in their habit of approaching the middle-ear structures via the mastoid. They did in fact compromise by inventing the transmastoid atticotomy. In this latter operation the mastoid is opened and exenterated solely as a means of approaching and draining the epitympanum. The ossicles and drum, wherever possible, are left intact. Admittedly a step in the right direction, this operation still has many disadvantages in comparison with the transmeatal approach. We may note the following.

It entails a postaural incision with its sutures, ligatures, possible stitch abscesses, and so on.

It produces a large raw bone cavity inadequately lined by skin flaps which are only too liable to become gangrenous. In contrast with this the meatal operation leaves intact the mucosal lining of the bone which, although chronically inflamed, is quite capable of healing perfectly if properly drained. There is adequate healthy skin to cover the small raw edge of bone. In some cases the final result is amazing; it would be impossible to recognise that an operation had been performed.

There is no comparison between the magnitude of the two operations. The one is a major operation lasting 1–1½ hours under a general anæsthetic and entailing two or three weeks in hospital; the other is a minor procedure usually performed under a local anæsthesia and lasting about 30 min. The patient is out of bed the next day and can leave hospital immediately, though I usually keep him in under observation for two or three days.

The reader may well inquire what compensating disadvantages must otologists have visualised. What difficulties, imaginary or real, deterred a generation of surgeons from attempting this operation? The question is partly answered by the following opinion of a well-known American surgeon (Shambaugh 1937).

"This operation, similar to ossiculectomy with removal of the outer attic wall through the meatus, has the same disadvantages: limited visibility,

limited accessibility and therefore increased danger of facial-nerve injury or stapes luxation. The post-aural route has no disadvantages to compare with the increased hazard of the canal route."

My answer to this is an emphatic denial. Admittedly the operation is not one for the casual otologist, but neither is any other procedure that aims not only at curing the disease but also at conserving the hearing. In conscientious and careful hands transmeatal atticotomy can be performed with the precision of a watchmaker. The ossicles, drum, and the region of the semicircular canal and facial nerve are under close supervision all the time and the clear-cut bloodless field (produced by local anæsthesia) permits delicate manipulations which would be quite impossible in the blood-filled depths of an ordinary mastoidectomy cavity. On the Continent, and, I believe, in Russia, the operation is gradually gaining recognition, having been advocated by a small band of enthusiasts for some years (Kecht 1936, Thies 1933, and Trampnau 1936).

It is not possible in an article of general interest to discuss details of technique. Suffice to say that under local anæsthesia a small skin flap is turned down from the deep part of the osseous meatus just where it abuts on the post-superior quadrant of the drum. The bone thus exposed is none other than the outer wall of the attic. It is carefully chiselled away and then the skin flap replaced and tucked down over the raw bone edge. No dressings are required but the usual supervision of the tiny cavity is maintained subsequently till healing is complete. This after-treatment is of supreme importance. The operation merely gives the surgeon access to the delicate mucoperiosteal lining of the attic, ulcerated by years of chronic inflammation. The recuperative power of this lining is trivial compared to, say, skin or mucous membrane. To leave this work to the unskilled hands of nurse, house-surgeon, or even clinical assistant is to invite failure. Unless a surgeon intends to supervise these cases personally, he had better not undertake transmeatal atticotomy.

Now, I am not going to maintain that this operation will always result in a dry ear; I could point out that a depressing proportion of classical mastoidectomies are failures from that point of view also. It is not a question of contrasting the merits of two alternative operations, but rather of deciding on the indication and function of two entirely different procedures. I submit that for "chronic perforating epitympanitis" the transmastoid operation is wrong, and the transmeatal is right. For chronic pan-otitis the transmastoid is probably inevitable, but if conservation of function is desperately important, the surgeon may begin with a meatal operation provided he is prepared to do a subsequent mastoid exploration if otorrhœa persists. Between the two extremes there are many intermediate cases in which opinion might vary. My own preference will always be for the meatal operation. It only remains to give clinical details of illustrative cases.

RESULTS

First, let us show that transmeatal atticotomy can cure chronic otorrhœa which has defied intensive conservative treatment. It should be emphasised that in no case was the operation performed until it was obvious that a prolonged and intensive conservative treatment had failed. A minimum of two months was imposed, several cases were treated for six months, one for over a year, and one actually for nearly four years. Patients were seen weekly and even oftener if necessary. Ionisation, iodised boric powder, bipolar electrolysis, attic lavages with carbon tetrachloride, short-wave diathermy, and other non-surgical methods were used, and it can be rightly claimed that these cases—apart from operation—were incurable and so doomed to progressive deafness. In several cases the hearing was at a very low level, the otorrhœa having been present for as long as twenty years.

Out of 17 such operations which I have performed during the last year, 13 are quite dry and 2 more recent cases are almost dry; 1 case had a further transmastoid exploration and is now dry; 1 case has continued to suppurate and must therefore be considered a candidate for a transmastoid operation. It is manifest that in properly chosen cases of chronic otorrhœa, a high percentage of cures is obtainable by this operation.

What of the effect on the hearing? This, after all, is the point which concerns us most. In only one case was the hearing impaired as a result of the operation. This is due to the fact that I unfortunately dislocated the incus and had to remove it. One patient complained of some loss of hearing after preliminary amputation of a polyp, but even in this case, the subsequent atticotomy restored his auditory acuity to its previous level. Three patients said that their hearing was not improved, but that it had certainly not deteriorated. We must remember that a dry ear is less liable to progressive deterioration than a suppurating ear. It is for that reason that I have spoken of the surgical "conservation" of hearing.

Surely it is not unreasonable to claim that these patients have been preserved from deafness. In the remaining 13 cases it is justifiable to claim much more than that. Everyone of this group achieved a

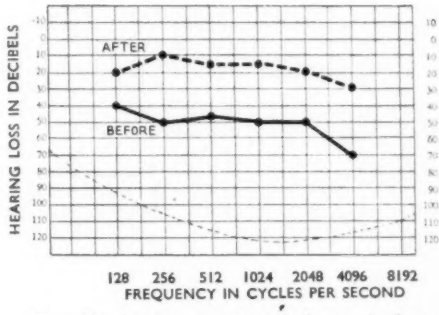

FIG. V—Audiometer chart before and after transmeatal atticotomy.

definite improvement in auditory acuity, and indeed in some of them the change was most dramatic. The audiogram shown in fig. V is typical, but for less technically minded readers it may be more satisfactory to read what the patients themselves have to say. For this purpose I sent out a questionary simply asking patients to describe the conditions of their hearing compared to what it was previously, and to state how they arrived at their conclusions. The following remarks are extracted from some of their replies:

(1) "There is a vast improvement in the ear. Many people who have known me for a number of years do not have to shout now. I can hear perfectly over the telephone." (This man's other ear was profoundly deaf.)

(2) "I am pleased to say the hearing in that ear (the right) was almost normal by April, 1938, and has

remained so to date." (This man had regarded his right ear as useless and merely attended because the otorrhœa of about twenty years' standing was becoming too troublesome.)

(3) " . . . for instance, I received a message by the telephone early this morning. A year ago this was a dead instrument to me. I now hear the sound of boiling water, and of our dog sleeping, &c., &c., in fact, my hearing is almost 100 per cent. perfect."

(4) " Willie was deaf for a few years before you took him for treatment. His hearing is now so much better that he can hear me when I am speaking quite low. He can also hear the least sound."

(5) " Before treatment I was quite deaf in that ear. Now I can hear a small watch ticking at 12 in., and a clock at 5 or 6 ft. away."

(6) " My ear is alright and I can hear quite well now. The only test I can tell you is that I have no pain now, and I can hear when anyone speaks. I do not have to ask them to repeat themselves."

(7) " Before you healed my ears, if I lay down for any length of time I went quite deaf. . . . I nearly had to give it (my work) up as I could not hear the orders. I myself know I am 100 per cent. better now, also I have been told so by others."

It would perhaps be even more convincing to see the changed facies, mentality, and even physique of some of these patients who have so dramatically recovered their hearing. I am quite certain that no surgeon who has once seen his work rewarded by such results would dream of doing a radical mastoid in chronic perforating epitympanitis. McKenzie was quite right when he said years ago that the correct operation was " to remove the thin plate of bone via the meatus—the mastoid route was quite unnecessary." I believe the present series of cases gives ample proof that he was not a false prophet.

SUMMARY

Chronic perforating epitympanitis produces a type of otorrhœa which is frequently benign in that it may persist for many years without serious involvement of drum ossicles or mastoid bone.

Because of its chronicity, and the definite (although infrequent) occurrence of intracranial complications, this condition has been regarded as an indication for a radical mastoid operation. This attitude has undoubtedly resulted in much unnecessary suffering and deafness.

The alternative operation of transmeatal atticotomy has apparently never been performed in England. This operation, though requiring considerable " skill," is a minor procedure from the patient's point of view. It takes about half an hour under local anæsthesia and the patient can leave hospital on the second or third day. There is no external incision, no sutures or ligatures are required, and after-treatment, although technical, is reduced to a minimum.

In the presence of gross disease of ossicles and drum there is little to gain from this operation, and in chronic suppurative mastoiditis it is definitely contra-indicated.

Most cases of chronic otorrhœa in adult life, and many in childhood, are due to chronic epitympanitis. Generalised tympano-mastoid disease—i.e., pan-otitis—may have been common years ago, but is comparatively rare now.

Cases are quoted to show that not only can the operation cure suppuration and thereby conserve hearing, but in favourable cases it may actually restore hearing which had been lost since childhood.

Surgeons in the past may have avoided this operation because of its technical difficulties, real and imaginary, but more important is the failure to distinguish between chronic epitympanitis and chronic pan-otitis.

In experienced hands complications should be much rarer than in the radical mastoid operation. There have been no complications in the present series.

A dry ear can be obtained in a high proportion of cases and hearing is improved to a surprising extent.

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ANGINA IN PERNICIOUS ANÆMIA

WITH ELECTROCARDIOGRAPHIC CHANGES AND ABDOMINAL ANEURYSM

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(With Illustrations on Plate)

THE case here described showed two interesting features. First, symptoms of angina pectoris were associated with pernicious anæmia and with electrocardiographic changes which disappeared after liver therapy. Secondly, this was a good example of an abdominal aneurysm, a rare condition, confirmed by radiography, the outline of the aneurysm being extremely well shown owing to the presence of calcification.

CASE-RECORD

A nurse, aged 63, who had served in the late war, had complained of indefinite abdominal symptoms, chiefly constipation and abdominal pains, since 1918. In August, 1937, she had tachycardia on slight exertion, and was kept in bed for the next three months; on getting up she began to have precordial pains on exertion radiating down the left arm into the fingers. At the same time her abdominal pains became worse and vomiting set in. She also complained of sore tongue.

On examination in April, 1938, she was thin and pale. Clinically the heart and lungs were normal and the tongue appeared normal. A pulsating mass was felt in the region of the lower abdominal aorta. A radiogram of the abdomen showed a calcified aneurysm of the abdominal aorta about 2 in. by 2½ in., extending to the left of the spine at the level of the 4th and 5th lumbar vertebræ (figs. I and II on plate). The aorta above and below the aneurysm showed calcification. The vertebræ were not eroded. An electrocardiogram on May 6 showed left ventricular preponderance and a negative T wave in lead 1 (fig. III). Radiography of the chest showed slight cardiac enlargement and some calcification in the arch of the aorta. Blood-count showed a moderate anæmia: red cells, 3,900,000; hæmoglobin, 84 per cent.; colour-index, 1·08; white cells, 7200 (polymorphs 62 per cent., eosinophils 1 per cent., large mononuclears 9 per cent.); no abnormal cells seen; size of red cells 7·81 μ. Wassermann reaction negative. Fractional test-meal showed complete achlorhydria.

In July, 1938, the abdominal pain and vomiting and anginal pain became worse, the latter now coming on even while at rest in bed. Blood-count: red cells, 2,600,000; white cells, 1800; Hb., 54 per cent.; C.I., 1·05; size of red cells 7·64 μ; anisocytosis, poikilo-

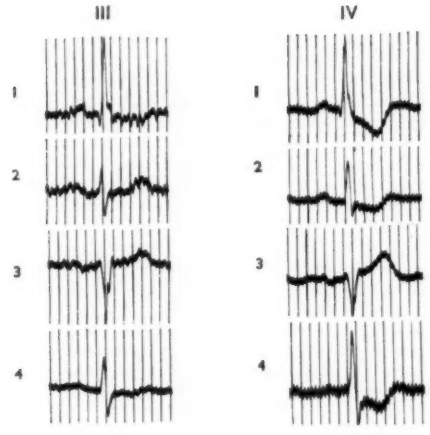

FIG. III—Electrocardiogram, June 5, 1938. Left ventricular preponderance and negative T wave in lead 1.

FIG. IV—Electrocardiogram, July 26, 1938, during anginal attack. Negative T waves in leads 1, 2 and 4, with depression of R–T interval and climbing T wave in lead 3.

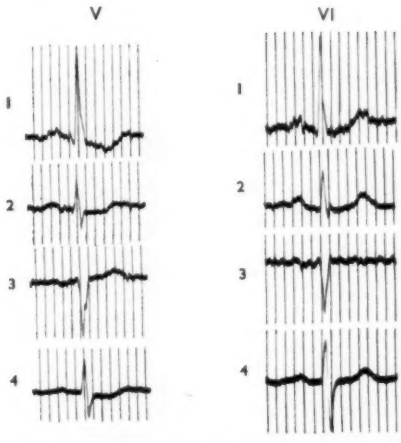

FIG. V—Electrocardiogram, July 29, 1938. Negative T wave in leads 1 and 2. Left ventricular preponderance.

FIG. VI—Electrocardiogram, March 28, 1939. Normal. T waves in leads 1, 2 and 4 have become positive.

cytosis, polychromasia and punctate basophilia, also a few normoblasts. The soreness of the tongue was very severe. The electrocardiogram taken on July 26, during an attack of anginal pain, showed negative T waves in leads 1, 2 and 4, with depression of the R–T interval and a "climbing" T wave in lead 3, the whole appearance being suggestive of a recent coronary occlusion (fig. IV). Intensive liver therapy was then started, the administration of hydrochloric acid, which had been given previously, being continued. After a few days of this treatment there was striking improvement in the patient's general condition and the anginal attacks ceased. On the 29th the electrocardiogram showed a negative T wave in leads 1 and 2 and left ventricular preponderance (fig. V) and resembled closely the electrocardiogram taken in May, 1938.

Progress was rapid and continuous, and the patient was able to return home with a relatively normal blood-count, complaining of scarcely any abdominal symptoms beyond some abdominal discomfort and constipation. All traces of anginal pain had gone. On Jan. 13, 1939, her blood-count showed: red cells, 4,400,000; Hb., 82 per cent.; size of red cells 7·64 μ; some anisocytosis and poikilocytosis present. The soreness in the tongue had entirely disappeared. On March 28 she felt quite well and her blood-count was: red cells, 4,600,000; Hb., 88 per cent.; C.I., 0·96; white cells, 4600; size of red cells 7·3 μ; some anisocytosis and poikilocytosis. The aneurysm was still felt pulsating in the abdomen. The electrocardiogram on March 28 showed no abnormalities whatever, the negative T waves in leads 1, 2 and 4 having become positive (fig. VI).

DISCUSSION

It has long been recognised that anginal pain is a common symptom in pernicious anæmia, yet it is generally supposed that electrocardiographic changes are not found in cases of this type. Thus Shirley Smith (1933), in a series of 15 patients suffering from severe anæmia of various types, took serial electrocardiograms without finding any electrocardiographic abnormalities or changes after specific anti-anæmic treatment. He points out that in this respect pernicious anæmia and other severe anæmias differ from diabetes and other nutritional diseases in that he did find electrocardiographic changes in cases both of diabetic coma and hypoglycæmic coma. Pickering and Wayne (1934) found no electrocardiographic changes even in those cases of pernicious anæmia in which angina was a well-marked symptom. It is true that Coombs (1926) suggests that certain electrocardiographic changes may be peculiar to severe anæmia, but he gives no particulars.

There can be little doubt that, in the case described here, in addition to pernicious anæmia there were arteriosclerotic changes; this is shown by the presence of the aneurysm and the calcification in its walls. When the patient was first seen, and when a relatively slight degree of anæmia was present, the electrocardiogram showed certain definite abnormalities such as left ventricular preponderance and a negative T wave in lead 1. Three months later, when an obvious and severe pernicious anæmia was present, symptoms of angina at rest had developed, and the electrocardiogram taken during an anginal attack was suggestive of a coronary occlusion. Three days after the exhibition of liver therapy the angina had disappeared and the electrocardiogram, though still abnormal, was nearly the same as the first of the series. After six months' liver therapy the electrocardiogram had become normal. It is suggested that some arteriosclerotic coronary stenosis was present in this case, but that when the oxygen-carrying power of the blood was normal this was not sufficient to cause ischæmia of the heart muscle. When the oxygen-carrying power was reduced by the pernicious anæmia beyond a certain point, however, myocardial anoxæmia developed, giving rise to the symptoms and electrocardiographic changes.

I wish to thank the Director General of Medical Services, Ministry of Pensions, for permission to publish this case, and Dr. Arnold Stott for his kind help in preparing this report.

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HISTIOCYTIC MEDULLARY RETICULOSIS

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(*With Illustrations on Plate*)

IN the century following Thomas Hodgkin's (1832) paper his syndrome resolved itself into a multiplicity of pathological entities. The leucoses, syphilitic and tuberculous lymphadenitis and lymphosarcoma (Kundrat 1893) were isolated; Sternberg (1898) and others established the histological features of lymphadenoma verum but there remained a number of cases which defied classification. These pathologists and clinicians alike have been accustomed to dismiss as "atypical Hodgkin's disease." It is of one group of these atypical cases that this paper treats.

Where the cause of a morbid process is unknown its diagnosis commonly rests on the changes in the patient's tissues, the ultimate analysis of which must be microscopical; thus in the group of diseases under consideration diagnosis can only be made with certainty by the microscope. The histological criteria must be rigid, for if the cause be unknown it is irrational to assume that disease processes in two cases are identical unless the tissue changes are identical. The histological criteria for the diagnosis of Hodgkin's disease (lymphadenoma verum) have long been established (Sternberg 1898, Andrewes 1902, Reed 1902, Longcope 1903, Ziegler 1911) and there can be no justification for including under that head—even with the qualification "atypical"—cases which do not show the characteristic histological picture however close their clinical and anatomical resemblance to lymphadenoma verum. Progress will only be made when sufficient "atypical" cases have been collected to be submitted to histological analysis and classification.

In an earlier paper (Scott and Robb-Smith 1936) we published three such cases and reviewed previous reports. We concluded that a group of diseases exists which are characterised by a progressive cellular hyperplasia throughout the hæmopoietic and lymphatic tissues; these conditions differ from one another by virtue of the histological type or types of proliferated cells but owe their interrelation to the common mesenchymal origin of these cells. In some instances the proliferation has the characteristics of neoplasia, in others it does not transcend hyperplasia; but in all the change occurs in a systematised manner throughout the lymphoreticular tissue. This group includes such apparently diverse diseases as Gaucher's syndrome, the leucoses and "atypical Hodgkin's disease." To these conditions have been applied the general descriptive title reticulosis (Letterer 1924, Pullinger 1932), or, if neoplasia be present, reticulosarcoma. Common examples of reticulosis are lymphoid leucosis (lymphatic leukæmia), where a systematised lymphocytic proliferation exists, and lymphadenoma verum in which there is a hyperplasia of reticulum cells (primitive undifferentiated mesenchymal cells) with differentiation to myeloid and fibril-forming elements. A suggested classification of the reticuloses and reticulosarcomata on a histological basis has recently been published by one of us (Robb-Smith 1938).

In this paper we are recording four examples of histiocytic medullary reticulosis and surveying the published reports of cases which appear to us similar. These cases will be seen to present a clear-cut clinical and pathological picture and give force to our contention that detailed analysis of the reticuloses will show the existence of unsuspected clinico-pathological entities. These cases illustrate what we have come to regard as the typical clinical course of the disease: fever, wasting and generalised lymphadenopathy are associated with splenic and hepatic enlargement and in the final stages jaundice, purpura and anæmia with profound leukopenia may occur. Post-mortem examination shows a systematised hyperplasia of histiocytes actively engaged in phagocytosis of erythrocytes.

First Case *

A married woman, aged 48, was admitted to St. Bartholomew's Hospital on July 19, 1929, complaining of weakness, cough and swellings in the neck and axillæ.

History.—Apart from "consumptive bowels" in infancy and appendicectomy for dyspepsia at the age of 36 she had had good health until four weeks previously when a swelling in the right occipital region had appeared; within the next few days this had been followed by swellings on both sides of the face and neck. She had felt ill and weak and had lost her appetite. Two weeks before admission similar swellings had appeared in both axillæ and groins and an unproductive cough had started. Exhibition of arsenic had been followed by diarrhœa. Her weakness and cough had grown worse and to them had been added shortness of breath.

Physical examination.—Temperature 104° F.; pulse frequency 110 per minute. She was dyspnœic and sweating; sordes were present and the tongue was furred. The fauces were dry and hyperæmic. Small lymph-nodes were palpable in the occipital, pre- and post-auricular groups and in all cervical triangles, both axillæ and groins. The epitrochlear nodes were not enlarged. In the chest there was increase in parasternal dullness with impaired percussion note and crepitation at the right base. The heart was normal. The liver was enlarged to 2 cm. below the costal margin and the spleen could not be felt.

Investigations.—Urine: a trace of protein, otherwise normal. Blood-count: erythrocytes, 4,580,000 per c.mm.; hæmoglobin, 86 per cent.; colour-index, 0·93; leucocytes, 2200 per c.mm.—neutrophil 59 per cent. (1296), eosinophil 2 per cent. (44), basophil 0·5 per cent. (11), lymphocyte 35 per cent. (770), monocyte 3·5 per cent. (77).† Blood-culture: sterile. Wassermann reaction: negative. Skiagram of chest: enlargement of lymph-nodes in mediastinum and both hila; interlobar pleural thickening, right.

Progress.—Pyrexia continued with an evening temperature of 102°–104° F., her general condition deteriorated, a diffuse purpuric eruption appeared and the spleen became palpable. She died on Aug. 14 after an illness of eight weeks.

POST-MORTEM EXAMINATION AND HISTOLOGY

The body of a wasted woman with petechiæ on the face and trunk. Discrete enlargement of lymph-nodes in neck, axillæ and groins. Brain: natural. Heart: numerous petechiæ on pericardial surface and in muscle; no valvular defect. Upper air-passages: natural. Pleuræ: old adhesions at bases. Lungs: early basal bronchopneumonia; mediastinal

* This case was briefly described by Pullinger (1932).
† The figures in parentheses represent absolute numbers per c.mm.

and bronchial lymph-nodes enlarged, fleshy and hæmorrhagic. Peritoneum and alimentary tract: natural. Mesenteric and retroperitoneal lymph-nodes enlarged. Liver: enlarged, pale and fatty. Spleen: 450 g. soft; small white nodules scattered throughout its substance. Kidneys: subcapsular petechiæ. Ureters and bladder: natural. Genitalia: natural. Thyroid, suprarenals and thymus: natural.

Lymph-node.—The normal architecture is distorted by a proliferation in the medulla and lymph sinuses. The lymph follicles can be distinguished but are compressed and consist entirely of small lymphocytes. The cellular proliferation replacing the medulla consists of reticulum cells and large lymphocytes, but outnumbering these are cells of similar size to the large lymphocyte with irregular outline and almost filled by a round or oval nucleus rich in basichromatin; nucleoli are not present, the cytoplasm is eosinophilic and mitotic figures are plentiful. These cells are regarded as "prohistiocytes." Numerous histiocytes with small dark nuclei and ingested particles are present. Multinucleate cells are scanty and fall into two types: the typical "mirror-image" giant-cell of Sternberg and Reed and a cell with an eosinophilic cytoplasm and a contorted nucleus rich in chromatin resembling the prohistiocyte. The sinus-lining cells show proliferation with prohistiocytes and mature histiocytes lying free in the lumina; phagocytosis of erythrocytes and debris is in process. The whole node is congested and there are occasional areas of focal necrosis. The reticulin framework although stretched is normal and there is no increase in collagen.

Spleen.—The organ is congested and shows many areas of focal necrosis. Throughout the medulla these is a cellular proliferation similar to that described in the lymph-node. Some malpighian bodies, consisting of small lymphocytes, can be seen but others appear to have been replaced by reticulum cells and prohistiocytes. Active erythrophagocytosis is in progress and the sinuses are filled with proliferated littoral cells and prohistiocytes. A few nodules consisting of reticulum cells and prohistiocytes are present in which mitoses are common. The reticulin framework has not been altered but in the cellular nodules there are few fibrils. Much iron-pigment is present.

Liver.—There is proliferation of reticulum cells and prohistiocytes in the periportal tissues. The sinusoids are filled with prohistiocytes and proliferated Kupffer cells, many of the latter containing erythrocytes. The parenchyma shows fatty infiltration and much iron-pigment is present in the hepatic and Kupffer cells.

Bone-marrow.—Erythropoiesis and granulopoiesis are accompanied by a proliferation of reticulum cells and prohistiocytes, but neither this change nor erythrophagocytosis are as prominent as in the other organs. No adipose marrow was preserved for examination.

Areas of similar cellular proliferation are present in the interstitial tissues of the kidney and myocardium and around the vessels and sweat-glands in the dermis.

Second Case

Male, aged 31, meat-porter. Admitted to St. Bartholomew's Hospital on Jan. 5, 1932, complaining of weakness.

History.—He had always been healthy until seven months before admission when he had started to feel tired and short of breath on exertion. With difficulty he had continued at work for another month when weakness had forced him to seek advice. A month later he had been admitted to the Archway Hospital with relapsing pyrexia, splenomegaly and hepatic enlargement. After a few weeks lymph-nodes had become palpable in the posterior cervical triangles. Blood-counts had shown a hypochromic anæmia with 65 per cent. hæmoglobin and 3000 leucocytes per c.mm. without specific changes in the differential count but with polychromasia and basophilic stippling of the erythrocytes. After three months in hospital a zoster of the eighth right thoracic segment had appeared, accompanied by severe pain. Two months later he had returned home, but after three weeks he had attended St. Bartholomew's Hospital on account of a swelling in his neck and had been admitted on the same day.

Physical examination.—Temperature 102° F.; pulse frequency 120 per minute. He was pale and emaciated. There were patches of alopecia at the nape of the neck and shotty lymph-nodes could be felt in all cervical, axillary and inguinal groups; the epitrochlear nodes were not palpable. At the angle of the jaw on the right side was a soft swelling, unattached to the skin, measuring 4 by 2 cm. The lungs were normal and a systolic murmur was audible at the cardiac apex. A healing zoster was present over the right 6th, 7th and 8th thoracic segments where the skin was glossy, red and indurated. The spleen was enlarged to 22 cm. below the costal margin and the liver to 13 cm., both were firm and insensitive. Signs of a small ascites were present.

Investigations.—Urine: normal. Blood-count: erythrocytes, 2,850,000; hæmoglobin, 53 per cent.; colour-index, 0·9; leucocytes, 844—neutrophil young form 1 per cent. (8), segmented 62 per cent. (523), lymphocytes 27 per cent. (227), monocytes 9 per cent. (76), unclassified 1 per cent. (8). Van den Bergh's reaction: direct, negative; indirect, 0·25 mg. bilirubin per 100 ml. serum. Wassermann reaction: negative. Skiagram of chest: normal.

Progress.—Pyrexia, with an evening temperature reaching 103° F., continued and on Jan. 22 he complained of sore-throat; his leucocyte count at this time was 968 per c.mm. He became progressively worse with cough, stridor and dysphagia, finally developing jaundice and dying on Jan. 31, after an illness lasting nearly eight months.

POST-MORTEM EXAMINATION AND HISTOLOGY

The body of a wasted jaundiced man with a diffuse petechial rash. Discrete enlargement of lymph-nodes in neck, axillæ and groins. Brain: natural. Heart: subpericardial hæmorrhages. Larynx: recent perichondritis with gangrene of overlying mucosa; sinus below and behind left vocal cord. Pleura: natural. Lungs: congestion and basal bronchopneumonia.; mediastinal lymph-nodes enlarged, fleshy and hæmorrhagic. Peritoneum and alimentary tract: natural; mesenteric and retroperitoneal nodes enlarged. Liver: 2900 g.; surface pale with petechial hæmorrhages; on section uniformly pale and friable. Spleen: 950 g.; adherent to surrounding viscera; two old and two recent infarcts; on section, dark red with scattered white nodules. Kidneys, ureters and bladder: natural. Genitalia, thyroid and suprarenals: natural. Femoral bone-marrow: dark red throughout length of shaft with scattered small white firm areas.

Lymph-node.—A cellular proliferation is present in the medulla which has the same characteristics as in case 1 but lymph follicles can no longer be recognised and there is compression of the sinuses. Reticulin fibrils are increased but there is no excess of collagen; erythrophagocytosis is prominent.

Spleen.—Apart from the infarcts the changes are similar to those in the lymph-node. It is still possible to distinguish occasional malpighian bodies and these are often surrounded by an increase of reticulin fibrils. The littoral cells show some hyperplasia but the chief change is in the medulla. Erythrophagocytosis is pronounced but iron-pigment scanty.

Liver.—The hepatic parenchyma shows extreme fatty infiltration. Cellular proliferation with an increase in reticulin fibrils is found in the periportal tissues. The Kupffer cells are hyperplastic and engaged in erythrophagocytosis.

Bone-marrow.—Cellular proliferation with ingestion of erythrocytes is occurring side by side with a patchy hæmoblastic reaction.

Third Case

Male, aged 41, caretaker. Admitted to St. Bartholomew's Hospital on Oct. 23, 1936, complaining of weakness.

History.—He had had a mastoid operation at the age of 18 and a shrapnel wound in the left ankle during the war; otherwise his health had been good until four weeks before admission when after a day of heavy mowing he had suddenly felt weak and short of breath. He had remained at work for a further week with a sense of increasing exhaustion. At that time he had taken to his bed because of sudden swelling of his legs; this had lasted only three days but had been followed by persistent fever with sweating at night.

Physical examination.—Temperature 101·2° F.; pulse frequency 90 per minute. He was thin, pale and sweating. Dental infection was present with gums which bled when touched. Small mobile discrete lymph-nodes were palpable in both posterior cervical triangles, both axillæ and groins; the epitrochlear nodes were not enlarged. Scattered bronchitic sounds could be heard throughout both lungs. The heart was normal. The spleen was enlarged to 8 cm. below the costal margin and the liver to 3 cm.

Investigations.—Urine: normal. Blood-count: erythrocytes, 2,780,000; hæmoglobin, 50 per cent.; colour-index, 0·89; polychromasia and anisopoikilocytosis present; leucocytes, 1000—neutrophil young forms 1 per cent. (10), band forms 7 per cent. (70), segmented 48 per cent. (480), lymphocytes 31 per cent. (310), monocytes 13 per cent. (130), platelets 70,000 per c.mm. Sternal puncture: moderately cellular films; a promyelocytic type of granulopoiesis and active orthoplastic erythropoiesis. Adrenaline response: no primitive cells in blood. Van den Bergh's reaction: direct, negative; indirect, 0·2 mg. bilirubin per 100 ml. serum. Wassermann reaction: negative. Skiagram of chest: normal.

Progress.—His condition gradually deteriorated; pyrexia continued reaching 105° F. on some evenings. On Nov. 18 jaundice appeared which was followed by a generalised purpuric eruption, his leucocytes sank to 750 per c.mm. with 56 per cent. neutrophils and his platelets to 8200 per c.mm. He complained of pain in the throat and examination showed a necrotic angina. On Nov. 26 he died after an illness of eleven weeks.

POST-MORTEM EXAMINATION AND HISTOLOGY

The body of a wasted jaundiced man with petechiæ on the trunk and abdomen. Discrete enlargement of lymph-nodes in neck, axillæ and groins. Brain: natural. Heart: natural. Pharynx: necrotic ulceration with sloughing of epiglottis. Pleuræ: natural. Lungs: œdematous and congested; confluent bronchopneumonia right lower lobe; mediastinal and bronchial nodes enlarged, fleshy and hæmorrhagic. Peritoneum and alimentary tract: natural; mesenteric and retroperitoneal nodes enlarged. Liver: 2200 g.; cut surface green-yellow. Spleen: 1720 g.; several infarcts; cut surface soft and dark red. Kidneys, ureters and bladder: natural. Genitalia, thyroid and suprarenals: natural. Femoral bone-marrow: red throughout shaft.

HISTOLOGY

Lymph-node.—The histology is similar to that seen in cases 1 and 2 but in many of the nodes the medullary cellular pattern is loosened by a fibrinous exudate and it is in these zones that hæmorrhage has occurred. Phagocytosis is active but there is little free iron. The sinuses are compressed but littoral-cell activity can be seen. There is no increase in reticulin or collagen. In the periadenoid connective tissue of some of the nodes there is a proliferation of cells similar to those in the medulla.

Spleen.—The degree of medullary hæmorrhage and necrosis is more marked than in any of the other cases but the histology is similar; medullary phagocytosis is active and the sinusoids are compressed. There is a moderate amount of free iron.

Liver.—The hepatic parenchyma is well-preserved though there is biliary retention in the central zones. In the periportal areas the cellular proliferation is considerable, consisting chiefly of reticulum cells, prohistiocytes and cells of the lymphoid series with few active phagocytes. The Kupffer cells are proliferated and actively phagocytic. There is a moderate amount of free iron in the Kupffer cells and in the hepatic cells at the periphery of the lobules.

The *bone-marrow* is extremely congested and hæmorrhagic but it is not highly cellular; foci of cells of the histiocytic series are present.

Lung.—A subpleural nodule 0·5×0·6×0·8 cm. consists of a localised area of reticular cellular proliferation. The alveolar walls are thickened by collections of reticulum cells and lymphocytes; the alveoli are filled with alveolar phagocytes. There is no fibrosis nor bronchiolar obstruction to suggest that this is a secondary change.

Fourth Case

Farm-labourer, aged 52. Admitted to the Radcliffe Infirmary, Oxford, on Jan. 3, 1939, complaining of weakness and abdominal pain.

History.—For many years he had been deaf and this affliction coupled with a sluggish intellect made it impossible to obtain an adequate history. For some years past he had suffered from abdominal pain but during the past three months this had become worse and he had begun to feel weak. These symptoms had increased until he had been forced to consult his doctor four days before his admission.

Physical examination.—Temperature 101° F.; pulse frequency 120 per minute. He was wasted and pale with a malar flush. The mouth and pharynx were normal. Firm discrete mobile lymph-nodes were palpable in the right axilla and both supraclavicular groups. The heart and lungs were normal. The liver was enlarged but the spleen could not be felt.

Investigations.—Urine: normal. Blood-count: erythrocytes, 1,490,000; hæmoglobin, 29 per cent.; colour-index, 1·0; considerable anisopoikilocytosis; leucocytes, 1900—neutrophil band form 6 per cent. (114), segmented 48 per cent. (912), eosinophil 1 per cent. (19), lymphocyte 37 per cent. (703), monocyte 8 per cent. (152). Wassermann and Meinicke reactions: negative.

Progress.—His condition deteriorated with a regular intermittent pyrexia reaching 100°–102° F. in the evening and a tachycardia of 120–140 per minute. His spleen became palpable and on Jan. 13 an extensive purpuric rash appeared with œdema of the feet. He died on the 18th after an illness which had probably lasted about three months.

POST-MORTEM EXAMINATION AND HISTOLOGY

The body of a wasted man with a purpuric eruption on the back; there was no jaundice. Moderate enlargement of lymph-nodes in neck, axillæ and groins. Brain: natural. Heart: organising hæmorrhagic pericarditis; dilatation of all the cavities; fatty degeneration of the myocardium. Upper air-passages: natural; slight enlargement of the pharyngeal lymph-nodes which were dark red in colour. Pleuræ: no effusion; old adhesions at the left apex and right base. Lungs: pale and œdematous; old area of cavitation at the left apex. Mediastinal and tracheobronchial lymph-nodes: slightly enlarged. Peritoneum and alimentary tract: petechiæ on the œsophageal mucosa; the rest of the tract was natural and the lymphoid tissue was not increased in amount; the paraortic and mesenteric nodes were slightly enlarged, firm, discrete and hæmorrhagic. Liver: 2130 g., pale with areas of periportal pallor suggestive of an infiltration. Spleen: 954 g.; no perisplenitis; cut surface soft with an extremely congested pulp in which there were dark areas suggesting blood lakes; the trabeculæ and follicles could not be identified. Kidneys, ureters and

bladder: natural. Genitalia and endocrine glands: natural. Bone-marrow: dark red marrow extending over three-quarters of the length of the femoral shaft. The sternal and vertebral marrow was of a similar colour.

Lymph-nodes.—These were examined from a number of areas and all show changes similar to those described in the other cases, though the hæmorrhagic character is not so marked and the essential medullary origin of the proliferation is obvious; the œdema and fibrinous exudate observed in case 3 are also present. In places the follicles can still be recognised; the littoral cells in the sinuses are hyperplastic and contain some iron-pigment. There is no fibrosis nor periadenoid cellular proliferation.

Spleen.—The medullary proliferation of prohistiocytes and actively phagocytic histiocytes is considerable as are the hæmorrhagic œdema and fibrinous exudate; necrosis is not marked. The venous sinuses are compressed but the medullary blood lakes are liable to be mistaken for dilated venous sinuses unless reticulin impregnations are examined. There is much free iron in the medullary histiocytes.

Liver.—There is periportal and Kupffer-cell proliferation and much free iron-pigment in the liver cells and histiocytes.

Bone-marrow.—There is an active orthoplastic erythropoiesis with foci of the abnormal reticulum cells and at the periphery of these zones the histiocytes show ingestion of erythrocytes.

There is also a proliferation of prohistiocytes in the interstitial tissues of the heart-muscle and kidney and in the alveolar walls of the lungs.

Previously Reported Cases

We have found records of the following similar cases:—

TSCHISTOWITSCH AND BYKOWA (1928).—Male, aged 63, with two months' illness characterised by weakness, fever and cough. Pyrexia, jaundice, left-sided pleural effusion, œdema of legs, generalised lymph-node enlargement. Urine: urobilin, no bile pigment. Blood-count: erythrocytes, 3,720,000; hæmoglobin, 69 per cent.; leucocytes, 6600 (differential count normal).

Left-sided pleural effusion. Spleen, 500 g., dark red and firm. Liver, 1650 g., pale with occasional nodules. Generalised lymph-node enlargement. Spleen and nodes occupied by diffuse proliferation of reticulum cells and histiocytes, many of the latter showing erythrophagocytosis; moderate phagocytic activity of littoral cells; some increase of reticulin in medulla. Liver: periportal proliferation of reticulum cells and actively phagocytic histiocytes. Bone-marrow: foci of similar change.

BYKOWA (1929).—Female, aged 69, died after an illness of six weeks with generalised lymphadenopathy, splenomegaly, jaundice and consolidation of upper lobe of right lung. Blood-count: erythrocytes, 2,010,000; hæmoglobin, 49 per cent.; leucocytes, 1800 (16·5 per cent. neutrophils); platelets 27,170. Leucocytes later fell to 1000 per c.mm.

Spleen 18 × 13 × 16 cm. Normal architecture replaced by proliferated histiocytes and atypical phagocytic cells; no reticulin increase; some littoral phagocytosis. Liver: periportal cellular proliferation; phagocytic activity of Kupffer cells. Bone-marrow: little hæmopoietic tissue but great increase of actively phagocytic reticulum cells. Lungs: increase of alveolar phagocytes.

DERISCHANOFF (1931).—Female, aged 26, with an acute illness associated with weakness, pallor and splenomegaly. Blood-count: erythrocytes, 650,000; hæmoglobin, 30 per cent.; leucocytes, 7000 (differential count normal). Splenectomy followed by death.

Spleen, 2400 g.; great phagocytic activity in medulla and sinuses with a little reticulin increase. Lymph-nodes similar. Liver: localised nodules of phagocytic cells and increased activity of Kupffer cells.

DAMESHEK (1933).—Male, aged 39, with weakness and intermittent pyrexia for six months. On examination three months before death: generalised lymphadenopathy with splenic and hepatic enlargement. Blood-count: erythrocytes, 2,830,000; hæmoglobin, 55 per cent.; leucocytes, 3500, later falling to 1100 with 69 per cent. neutrophils.

Spleen, 310 g.; several infarcts and grey-yellow nodules; medulla replaced by proliferation of large polymorphic cells with dark nuclei; marked siderosis and erythrophagocytosis. Lymph-nodes similar. Liver: brown-red with grey nodules; periportal cellular proliferation; Kupffer cells active. Bone-marrow similar changes.

NORDENSON (1934).—Female, aged 65, with five months' illness attended by pain in sacrum, weakness and emaciation. Blood-count: erythrocytes, 1,800,000; hæmoglobin, 37 per cent.; leucocytes, 4800.

Spleen, 350 g.; follicles small; pulp and sinuses replaced by large cells containing much hæmosiderin. Lymph-nodes similar changes. Liver enlarged, red-brown; sinusoids filled with atypical darkly staining cells containing hæmosiderin; no clear distinction between periportal cells and those in sinusoids. Bone-marrow similar.

BEAVER AND JOHNSON (1934).—Female, aged 26, with three months' lassitude, irregular fever, diarrhœa and abdominal distension. Blood-count: erythrocytes, 4,500,000; hæmoglobin, 68 per cent.; leucocytes, 7100.

Bilateral pleural effusions; inactive rheumatic valvulitis; ascites. Spleen, 390 g.; purple hæmorrhagic nodules on cut surface; follicles small, sinuses engorged; cellular proliferation throughout medulla with active phagocytosis and areas of necrosis. Lymph-nodes: generalised enlargement with histological changes similar to those in spleen. Liver, 2250 g.; nodules on capsule and numerous hæmorrhagic areas on section; necrosis of parenchyma, periportal proliferation of atypical histiocytes and giant cells.; Kupffer cells inactive.

Discussion

The clinical picture.—The uniformity of these ten cases justifies an attempt to describe a clinical picture. All the patients were adults and the sexes were equally represented.

The disease was ushered in by asthenia, emaciation and a profound general intoxication accompanied by high, and sometimes relapsing, pyrexia. The lymph-nodes were enlarged in nine of the ten cases and although this change was usually generalised and moderate in degree, in some instances enlargement of one group predominated. Splenomegaly was present in all and in eight the liver was palpably enlarged. Seven cases showed jaundice in the later stages and where details are available they suggest hæmolysis as its basis. In our four cases a terminal purpuric eruption was noted.

The blood changes serve to distinguish the disease from acute leucosis although sternal puncture may be required to exclude the leucopenic variety. Anæmia was constantly present but its severity was usually in direct ratio to the duration of the illness; it was commonly normocytic but in some macrocytosis was a feature. Leucopenia was present in seven cases and in two of those reported here was profound enough to be associated with necrotic angina; the differential count however did not show agranulocytosis but a proportional reduction in all leucocytes with some "shift to the left" of the neutrophils. There was thrombocytopenia in the two cases in which platelet counts were made.

The course was rapid and all cases terminated fatally; the shortest after six and the longest after thirty-two weeks; the mean duration was fifteen weeks.

Pathology.—At post-mortem examination the general changes common to cases of profound anæmia

coexisted with wasting, jaundice and cutaneous and subserous petechiæ. The characteristic findings were confined to the lymphoreticular tissues. There was generalised moderate enlargement of lymph-nodes which individually were discrete and soft, showing on section a pink surface with areas of hæmorrhage. Splenic enlargement was of varying degree (310–2400 g., mean 880 g.); infarction with overlying perisplenitis was common and the cut surface was maroon in colour with raised paler areas 0·5–2·0 cm. in diameter: the malpighian bodies could not be seen and although the pulp was soft it was not diffluent. Enlargement of the liver was the rule; on section the organ was pale with areas of hæmorrhage, while lighter zones could be distinguished in the periportal tissues. The marrow of the long bones was commonly red, hæmorrhagic and interspersed with firmer pale nodules. In some cases the lymph follicles of the intestine were prominent and in others subcutaneous nodules were found.

The histological changes consist in a systematised cellular proliferation throughout the lymphoreticular tissues together with siderosis which is most intense in the hepatic parenchyma and the Kupffer cells. These changes occur in the lymph-nodes, the medulla of the spleen, the periportal tissues and focally in the bone-marrow and dermis. They are similar in all these situations and a detailed description will be limited to the lesion as seen in the lymph-node, for here all the characteristic appearances are gathered together in a small compass.

The normal structure of the node is modified by a cellular proliferation in the medulla; in some cases the follicles, although compressed, can yet be distinguished, in others they are obliterated by a proliferation around their central arterioles. The littoral cells of the lymph sinuses are often hyperplastic and actively engaged in erythrophagocytosis. The proliferation in the medulla is composed of reticulum cells and large lymphocytes but overshadowing these are numbers of cells of the histiocytic series. Some are typical histiocytes containing erythrocytes and nuclear debris; others, which we regard as their precursors, are non-phagocytic. These pro-histiocytes (Scott and Robb-Smith 1936) have a diameter of 12–14 μ with irregular contour and a pachychromatic nucleus averaging 9 μ in diameter which is set in an opaque eosinophilic cytoplasm. Mitotic figures are often found and giant prohistiocytes are not uncommon, their twisted nuclei, rich in basichromatin, contrasting sharply with the pale "mirror-image" nucleus of the Sternberg-Reed giant reticulum-cell of which examples are also frequently seen. Areas of hæmorrhage, fibrinous exudate and coagulative necrosis occur in the medulla, and although silver impregnation at times shows an increase in reticulin there is no excess of collagen and no fibrosis.

It should also be emphasised that the cellular proliferation and active phagocytosis is predominantly in the medullary portion of the nodes. In many bacterial infections—for example subacute bacterial endocarditis—there is often a considerable proliferation of the littoral cells in the liver, and elsewhere, with much phagocytosis; but in those conditions there is no proliferation in the medullary portion of the spleen or lymph-nodes nor in the periportal areas of the liver; further, the large number of the prohistiocytes and the hæmorrhagic areas secondary to the œdema and fibrinous exudate are characteristic changes in histiocytic medullary reticulosis.

It remains but to stress the differences between the histological appearances just described and those of lymphadenoma verum where the cellular proliferation in the medulla is pleomorphic with myeloid elements and fibrosis but without notable erythrophagocytosis.

The clinical and morbid histological picture exhibited by our four cases and by the other six recorded is sufficiently uniform to justify our contention that they are examples of a disease process sui generis. Neither the course of the disease nor the morbid histology of the lesions resemble those of Hodgkin's disease. These cases show a closer affinity with acute leucosis, but in them the systematised hyperplasia affects the histiocytes and their precursors and not the leucopoietic cells. For this condition we have suggested the histologically descriptive name "histiocytic medullary reticulosis"

Conclusions

1. Four cases are recorded of a clinical and pathological entity for which the name "histiocytic medullary reticulosis" is suggested.

2. This condition has previously been accepted as a form of "atypical Hodgkin's disease," although the two disorders are in fact dissimilar and unrelated.

3. Previous reports of six similar cases have been found.

4. The clinical course is characterised by fever, wasting, generalised lymphadenopathy, splenomegaly and hepatic enlargement. In the terminal stages jaundice, purpura, anæmia and profound leucopenia are common. All cases ended fatally.

5. The pathological findings are a systematised proliferation of erythrophagocytic histiocytes and their precursors throughout the lymphoreticular tissue.

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"... The highly educated minority seems to be close to the crossroads in the progress of higher learning. Their leadership in thought and practice can continue only as they find effective ways to distribute useful knowledge and service and to lead the majority toward sympathetic participation in advancing knowledge. The mass of knowledge-consumers and users, even though they are not primarily discoverers, now need, and sometimes expect or demand, enough insight into new knowledge that they may appreciate its significance."—Dr. OTIS W. CALDWELL, general secretary of the American Association for the Advancement of Science, *Science*, June 30, 1939, p. 595.

MEDICAL SOCIETIES

ROYAL SOCIETY OF MEDICINE

SECTION OF PSYCHIATRY

AT a meeting of this section held on July 11, with Dr. H. CRICHTON-MILLER, the president, in the chair, a discussion on

Euthanasia and the Psychoses

was opened by Mr. H. H. GREENWOOD. He outlined the history of the movement in favour of voluntary euthanasia, and the provisions of the bill to which the House of Lords refused a second reading in December, 1936, largely on the advice of Lord Dawson and Lord Horder. The bill provided that a person suffering from an incurable and fatal illness which involves severe pain may apply to receive euthanasia. He must be of sound mind and have attained majority. The application must be accompanied by two medical certificates, one from the sufferer's own medical attendant and one from an independent practitioner: these were to be sent to a referee, an official of the state, who if he saw fit could issue an official permit. The person to administer the euthanasia would be a medical practitioner licensed for that office. Mr. Greenwood summarised the objection to the bill on the ground of the sanctity of human life. It is admittedly difficult, he said, especially in psychiatry, to declare that a given condition is incurable: before the introduction of malarial treatment and convulsion therapy general paralysis of the insane and schizophrenia were believed to be incurable. Clearly the "independent practitioner" must be an alienist, as he must assess the patient's soundness of mind. The law, always suspicious of the integrity or the capacity of the alienist, is apt to make the facile generalisation that an act of self-destruction is of itself evidence of unsoundness of mind. Mr. Greenwood suggested that if an applicant for euthanasia made a will, his application might raise doubt of his testamentary capacity. No medical man would accept the office of administrator of euthanasia, but if the final administration is made by the patient it is an act of suicide, and the problem is removed to a different plane.

The bill laid emphasis mainly on bodily illness and suffering. Twenty per cent. of suicides, however, occur in the insane. Mental pain may be sufficiently dreadful as a concomitant of physical illness, but the mental pain of the psychopathic and the insane is a terra incognita explored only by the psychiatrist and probably outstrips in intensity any physical suffering. No sane person can comprehend the suffering that impels the melancholic to suicide. The sane sufferer begs for euthanasia, but the suicidal insane person demands death imperatively. Driven by an inner compulsion, he will make the opportunity to achieve it. Mr. Greenwood asked whether the term "voluntary euthanasia" excludes those who are demonstrably insane and who not only seek death but demand it.

Dr. LETITIA FAIRFIELD said that at first sight the suggestion that euthanasia should be available to psychotics is singularly attractive. No human misery is so excruciating to the sufferer and so painful to the onlooker, and in no state does the patient more frequently give the strongest demonstration that he wishes to be rid of his life. Death as envisaged by the psychotic may be coloured by the nature of his illness, and probably also depends on the conception of death which is in the minds of most persons. The large proportion of suicides are probably psychotic. There is hardly any form of psychosis in which the desire to end life may not find expression at some time or another. Some deaths may be interpreted as panic-stricken pell-mell flight from intolerable anguish, mental or physical; in others the motive is more subtle. A belief in immortality is found among all races and religions. The desire for death has been interpreted by psychologists as a longing to return to the mother's womb, and the beatific vision, or the Buddhist ideal of Nirvana, has been held not very different from the concept of the return to the prenatal existence. This picture is, however, said Dr. Fairfield, wholly incomplete unless its ambivalent character is recognised. The dread of death is as profound as the longing for it. The psychotic, like the sane person, has this instinctive dread of the unknown, of this second trauma which completes and cancels out the first trauma of birth. His dread may be temporarily conquered by his disappointment or pain, but it remains an essential part of his mental equipment.

The feeling of guilt and judgment is the very basis of some psychoses. It has little or nothing to do with theories of the after-life, religious belief or previous conduct. To many persons, especially later in life, it makes death a very dreadful thing; this dread may even impel a patient to kill himself—to fling himself into the abyss into which he dreads to fall. The teachings of the Christian religion are relevant to this inquiry because they form an important part of the training and the fundamental beliefs of most mental patients. Just as a Christian may not flee from death at the cost of honour, so he may not seek it without the permission of the Creator. Would the psychotic, asked Dr. Fairfield, be grateful for death if it were offered him? Would a death agreed to and inflicted by others meet his peculiar demand? The fear of death might rather add infinitely to the terror at present attached to mental disease in the mind of the public. She asked whether the bill proposed that the psychotic is to be dealt with only on his demand. Would the method of suicide be left to his choice? Is it proposed that mental hospitals should have licensed suicides whose point of view has been approved by some tribunal and who are at liberty to destroy themselves in any way they prefer; and a second class of patients whose application is before the Ministry of Health, and a third class whose application has been rejected and whose misery may thereby be increased?

When a reformer first begins to argue that these rights of life and death are in the hands of the individual to be exercised on hedonistic motives, recognising no higher rule, he finds himself in the same position as those who advocate that a woman should be allowed the right of abortion by her free individual choice, subject to the control of a tribunal. The proposal to set up a tribunal and official machinery completely negatives the supposed right of the individual and the proposition is reduced to an absurdity, for the two halves of it are incompatible.

The most acutely agonising mental conditions are curable disorders. Are the authorities (asked Dr. Fairfield) going to deny a patient's right to commit suicide because they hope his condition is curable; and if so, how long must he wait? Are they to consider the degree of the patient's agony, or the validity of their own prognosis? The manic-depressive

between his attacks thinks life worth living, and that interval, when he has a balanced judgment, is the time when he should make his decision. It would be quite impossible to make the public understand the precise limit of the psychiatrist's power under any bill which proposed euthanasia for the insane. Public opinion has passed with difficulty through an era of the most profound distrust of the mental hospital. One of the popular beliefs concerning mental hospitals and public institutions has been that "they do you in." Gradually that belief has been conquered —but the advocates of euthanasia apparently propose to make it true. If they had their way, then a consequence of psychosis would be that, perhaps for the patient's own good, at any rate on someone else's opinion, the power over his life would pass into the hands of another. That is the fundamental proposition the limits of which cannot be exactly defined and the terror of which would cast an extra shadow over the gathering clouds which even now make an approaching psychosis terrible enough. Psychiatrists would be better concerned in looking after the welfare of their patients in this world than in hurrying them into a world of the terms of entrance into which they know very little, except that gate-crashing is prohibited.

Dr. IAN SKOTTOWE suggested that the possibility of euthanasia might lead to a diminution of effort in the attempt to find a cure. In dealing with the psychotic the whole question turns on the word "suffering." Are psychiatrists, he asked, so sure that the melancholic is in fact suffering an agony comparable to that of the cancer patient? Work done at Cardiff on psychogalvanometric and blood-sugar responses indicates that the patients who harp most continuously on death and ask most vehemently to be allowed to die are those whose responses show the least real emotion and feeling. He agreed that the patients who may be believed on objective grounds to experience true suffering are the ones who are likely to recover. If the Freudian view of melancholia is correct—the inturning of the sadistic impulse and a regression to earlier levels—then the patient is enjoying his suffering and there is no argument for putting him out of it. We have only to look round to see the position which we have reached through our appalling habit of solving every personal problem by making a rule about it. Rules are generally made as a substitute for personal responsibility, and they will never be an effective one. In the problem of euthanasia the personal responsibility is twofold: that of the patient and that of the doctor; of the two the doctor is probably the less well-adjusted and therefore the less well-fitted to decide on the patient's fate. It is not credible that the Divine permission can be granted at the pearly gates of the Ministry of Health, or be personified by the Home Secretary. This is not a problem for legislation. If the psychiatrist can first clarify his personal problem and then by empathy feel himself into the patient's situation and ask himself whether he in that situation would hang on or give up as long as a spark remained, the answer would almost certainly be that he would hang on.

Dr. C. O. HAWTHORNE criticised the bill for proposing to introduce a fresh cause of distress to friends and relatives. It treated the patient as though he were completely isolated. Every practitioner knows that such a proposal would if enacted lead to the most anxious discussion in family circles whether a father or mother should or should not be encouraged to an act of suicide. After the death, relatives would always be found to say that it should not have been allowed and to quote similar cases in which the patient had recovered. He objected to the proposal to lay this duty on the doctor. If euthanasia became the law of the land, the state must find an executive officer.

Dr. MURDO MACKENZIE pointed out that extreme pain leads commonly to distortion of mental rhythm, which must invalidate the patient's soundness of mind.

The PRESIDENT emphasised the difference between the expiatory motive in suicide and the desire to die. To be put to death by the act of another would not satisfy the unconscious motive of the expiatory suicide: his death has to be at his own hands. The demand for death in a mentally disordered person is probably akin to the common demand of patients for change of environment, to be allowed to go away. The request is purely destructive and is a result of a projection of the mental state on to the environment. The act of putting a person to death is often disastrous to the mental integration of a judicial executioner, and in a case which the President quoted a man who had given his father, speechless with pain, an overdose of morphia in the conviction that he was acting rightly, had none the less suffered a severe neurosis. It is not in human nature, he concluded, to be an executioner on a rational basis, and we ought perhaps to be thankful that it is not.

ROYAL MEDICO-PSYCHOLOGICAL ASSOCIATION

THE annual meeting of this association was held in the Royal Pavilion, Brighton, on July 12.

Presidential Address

Dr. HELEN BOYLE, in her address "Watchman, what of the night?" said that she hoped to show that, in mental medicine, night was departing and day approaching. The first great step in this country was taken by the late Dr. Rayner. He realised clearly that patients in a mental hospital had often suffered for a long time before being admitted, and that by early treatment they might have recovered before reaching the stage at which they could be certified. He found that these patients presented themselves first at the general hospitals, sent often by their local doctors. He therefore persuaded St. Thomas's Hospital to establish an outpatient department for them in 1889, and worked in it himself till 1905. Dr. Percy Smith had exceptional opportunities for observing the earliest certifiable patients at Bethlem and later he started the second outpatient clinic at Charing Cross Hospital. Dr. Goodall's clinic at the Cardiff Hospital took the movement to the provinces. Many were the quips and jeers in those days, and yet the public on the whole has been more readily convinced of the value of early treatment in mental medicine than the medical profession itself. Now the idea is slowly seeping into the minds both of the profession and of the people at large that every general hospital is failing in its duty if it does not have at least an outpatient department for nervous patients. Sir Maurice Craig was the pioneer of physical and mental rest (now sometimes expanded into prolonged narcosis). He put numbers of his patients to bed for rest-cures, with or without massage. This in the early days caused laughter.

I recall that one of the rare differences of opinion I had with my very good head attendant at Claybury was when I insisted on keeping some of my feebler patients in bed. She warned me that if the commissioners came they would be much annoyed to see so many in bed. Sir Maurice Craig also did more probably than anyone else in this country to help the rank and file of the profession to appreciate the physical side of mental and nervous breakdowns. At this time there came a new trend of thought—the study of the emotions and their influence on character and conduct. From the welter of differing psychotherapeutic theories which developed it is possible to distinguish the gradual emergence of a type which, being a compromise, is dear to British hearts. This sound and sensible practice avoiding extremes may ultimately be called the British school.

The next great practical step was taken by the late Dr. Carswell of Glasgow, who started under the local authority in 1904 two wards separate from the infirmary, but close to it, into which he admitted those nervous and borderland patients whom he regarded as in need of treatment but who were not certifiable. Then in 1905 the "Lady Chichester Hospital" was started. We were convinced that its right place was in close association with a general hospital, and our little hospital was offered at the time of its birth to the Royal Sussex County Hospital. The offer was refused, although I was willing to make myself responsible for the financial side for a number of years. The start was therefore made independently by our clinic on £200 and a lot of faith. By slow degrees the hospital grew and was found useful, particularly in the Great War when we took in patients with breakdowns from war service and air-raids. The Lady Chichester Hospital later found its present home in New Church Road, Hove, and in 1930 the Royal Sussex County Hospital, on the proposal of Dr. Broadbent, itself suggested a liaison with us. It started an outpatient clinic for early nervous cases and we gave six beds for men and six for women.

What of the future? There are, and should be, in any living movement, differences of opinion as to methods; there should be none as to the aim. For us the aim is to find for this nation, and, as far as in us lies, for all nations, the best means of prevention and the best treatment for nervous and mental instability, and thus to establish a wise and secure mental adjustment. Numbers of us are already battling with the intricate obscurities of the psychological questions in unemployment and malnutrition and the origin of the psychoses and psychoneuroses, but consider the most urgent problem of all. It is easy to say "No-one in their senses would ever make another war; it would probably exterminate our civilisation." Everyone agrees. But nothing except a universal mental readjustment can stop wars.

A movement gaining momentum every year is the movement for a better training, both of the medical student and of the young postgraduate, in psychological medicine. We must throw open the doors of our mental hospitals not only to the voluntary patients but to any medical men and women who wish to gain experience in this most difficult specialty. Geographical difficulties are still considerable. It is to be hoped that local authorities, in choosing sites in the future, will realise the value of close relations between hospitals of all kinds, the medical profession, the social services and the patients' friends.

In conclusion, may we in this country never lose individual vision, freedom to realise it, and the generously given voluntary work which is almost a distinctive feature of Great Britain—being jeopardised at present but it is worth fighting for. Once lost it will hardly be regained.

Securing Early Treatment

Dr. W. J. T. KIMBER (St. Albans) said that for inquiring into the mental, bodily and environmental state of the patient a medical and psychiatric team of workers was required, and such teams were available only at the larger general hospitals. Their cost must if necessary be met by the local authority. The director should be a psychiatrist with broad general medical and surgical experience; the personnel should include a psychiatrist, part-time paid psychotherapists, a social worker and (for child-guidance clinics) a psychologist. Psychotherapists should have had a personal training analysis. The child-guidance unit could be at a general hospital, or at the mental hospital, or elsewhere; but all the mental-health services should be incorporated in a definite scheme. Beds were a necessity for any clinic; beds in a small clinic or a hospital ward were useful provided they were suitably staffed; beds in a mental hospital with a progressively educative and recreative regime were of greater value, but would not be acceptable to the public unless the amenities, and the classification of patients, were considerably better than they were at present in most mental hospitals.

Dr. JAMES FLIND (London) said that "long" and "short" psychotherapy differed not merely as regards the number of interviews or the length of treatment, but also in the method of approach to the patient by the doctor, the social worker, and others concerned in his treatment. Only patients of high intelligence and sufficient education were suitable for prolonged and deep analytic treatment. In 100 cases of psychoneurosis referred to the outpatient department of the Lady Chichester Hospital only 4 were thus treated. The incidence of physical illness in the series had been high, and the department gained greatly by having a hospital background. He was satisfied that help could be given even to the chronic psychoneurotic; one must assess the patient's optimum and make this the objective. Inpatient care was required (1) when treatment must be prolonged and intensive; (2) when physical conditions demanded complete rest; (3) when the patient must be removed from his environment; or (4) when the diagnosis between psychoneurosis and neurosis was in doubt. Most of these cases refused point-blank to go to a mental hospital on any terms, and there was a great need for special hospitals, linked with both general hospitals and mental hospitals, and child-guidance clinics, where some of the medical staff should be mental-hospital doctors.

Dr. NOEL HARRIS (London) said that at present there were not enough trained doctors. At Woodside Hospital for Functional Nervous Disorders there had recently been a greater demand for beds for the milder psychotics and mixed cases, than for pure psychoneurotics. Nursing was of great importance, as a bad nurse could do more harm than good. The treatment of early cases as inpatients in mental hospitals still presented difficulties; for many years a stigma would remain in the minds of the public. Moreover, so long as quiet patients were mixed with excited disturbed patients, it was hopeless to try to treat the early case. This depended more on lack of vision than lack of possibility of modifying the situation. Facilities for training psychotherapists

were still inadequate, although improving, and hostility between psychiatrists and psychotherapists often had damaging effects on the patient. The public should be educated to demand early treatment and to accept the mental hospital as their friend and helper, instead of fearing it.

Dr. DORIS ODLUM (London and Hove) said that to many people it seemed the psychoneuroses resembled the Loch Ness monster, which was visible only to those who went out to seek it with binoculars and a firm intention of finding something. The new psychotherapeutic creed embodied, as articles of faith: "We believe in the psychoneuroses; we believe in the early and preventive treatment of the psychoneuroses and minor psychoses; we believe in the value of child guidance; we believe in outpatient treatment, carried out by an adequately trained staff in suitable surroundings; we believe in inpatient treatment; we believe in the psychosomatic approach and all that this implies." Beyond this point however, all was still in the realms of controversy.

There was no question that the mental hospital had in the past pursued a regrettable policy of isolation. In some cases this had almost amounted to purdah, though it was doubtful whether the motive was modesty, self-sufficiency or fear. This attitude had done much to perpetuate the stigma, and contributed to the schism between the so-called psychiatrist and psychotherapist, which, if it persisted, would inevitably wreck the whole mental-hygiene movement. The more the mental hospital came into the open, the more it was prepared to give itself to the community and to receive from the community, the greater service would it afford. In connexion with the social reorientation of the patient Dr. Odlum remarked on the important part that was played by Woolworth's stores in reawakening interest in mundane affairs. She agreed with Dr. Flind that very few patients would respond to the more profound-types of mental analysis. About 8–10 per cent. of her outpatients need a period of inpatient treatment, and would not recover without it. In hospital treatment she assessed the importance of the nurse at about 75 per cent. and that of the doctor at 25 per cent. A stupid nurse could undo in a few hours the psychotherapeutic work of many weeks or even months.

Dr. W. MCCARTAN (Haywards Heath) said that it was difficult to give adequate psychotherapy in a mental hospital. There was a shortage of both trained medical and suitable nursing staff. Of the total admissions in the Brighton area last year sixty-two per cent. were voluntary patients, and for most of them psychotherapy would have been valuable. The services of the local public-assistance department should, if sympathetic, be utilised, for social and economic problems played a large part in the causation of mental illness. In Brighton the mental-hospital social worker had a desk in the local P.A.C. offices with access to their files and direct contact with the officers.

Dr. R. SESSIONS HODGE (Crewkerne, Somerset) said that if disease was "an ætiological constellation producing a certain engram" the family doctor was in a position to observe the formation of the constellation, and could act as a field-worker recording the natural history of disease. Outpatient treatment was eminently desirable, as the resocialisation of the patient was more easy if he was not removed from his environment. The stigma of the mental hospital was still very strong in the west of England.

Dr. ROBERT THOMPSON (Armagh, N. Ireland) thought that the wrong turning had been taken in transferring general-hospital methods to mental hospitals and in employing nurses with a general training who did not understand the mental case.

Dr. E. F. SKINNER (Sheffield) said that he had treated a number of early and mild psychotics in his own general wards, and thought that they did better there than in a mental hospital. His clinic was known to the students as the Cuckoo Clinic, but they all came to it.

Dr. GORDON MASEFIELD (Brentwood, Essex) believed that the mental hospital, properly run, was the ideal place for the early case, but he agreed that there must be proper classification and segregation of the noisy from the quiet, sensible cases. The special hospitals advocated would cut out the admission units in the mental hospitals. It was wrong to speak of the stigma, or to admit that any existed.

Dr. K. C. BAILEY (Warlingham) said there were not enough assistant medical officers in mental hospitals to undertake psychotherapy. If the medical profession did not supply the need, non-medical people would take it on.

Dr. W. C. M. SCOTT (London) said there was as much difference between superficial and deep psychotherapy, or what he would call minor and major psychotherapy, as between opening a boil and brain surgery. The failures of analysis needed investigating, but the failures of the superficial type of psychotherapy needed investigating also.

Dr. HAROLD PALMER (London) said that in other countries—for example, at the Pennsylvania Institute, Philadelphia—patients could be admitted for about three weeks for investigation and treatment; this was valuable for the patient who could not afford to leave his work for a long period. He strongly supported the proposal to develop special hospitals for early cases; he would be utterly opposed to any of his relatives going to a mental hospital.

The PRESIDENT did not agree with Dr. Gordon Masefield that we ought not to admit the existence of the stigma. It was only by facing the realities of the situation that we could hope to deal with it in a constructive manner.

Sir HUBERT BOND (London) concluded the discussion by saying that he thought it would prove to be the most far-reaching of any that had ever taken place at a meeting of the association.

Psychotherapy and the Skin

Dr. TWISTON DAVIES (Brighton) said that there were few cases of skin disease in which the psychological specialist could not help. Even such conditions as alopecia areata had a strong psychological factor. Probably it was due to a specific microbic infection, but a state of psychological instability would produce a lowered resistance. He and Dr. Hingston had investigated several such cases together.

Dr. LAMORNA HINGSTON (Hove) said her investigations in the dermatological department had led her to believe that many dermatoses represented a psychosomatic reaction, indicating anxiety in certain personality types, mostly the cycloid type. They represented a substitute for repressions.

Sir LAURENCE BROCK (chairman of the Board of Control) said he had noticed that psoriasis was exacerbated by acute anxiety or overstrain. He suggested that mental stress could upset metabolism.

(*To be continued*)

REVIEWS AND NOTICES OF BOOKS

Silicosis and Asbestosis

By Various Authors. Edited by A. J. LANZA, M.D., assistant medical director, Metropolitan Life Insurance Company; chairman of industrial hygiene committee of the New York Tuberculosis and Health Association. London: Humphrey Milford, Oxford University Press. 1938. Pp. 439. 25*s*.

IN the last ten years much work has been done on silicosis and asbestosis, but in spite of this it is still difficult to answer many apparently simple points about these two diseases. Thus, it is still disputed whether free silica or sericite causes silicosis, and again the mechanism by which active dust particles set up fibrotic changes in the lungs is not definitely known. Indeed in some circles the entity of silicosis as a disease separate from tuberculosis is challenged. We welcome therefore a book by acknowledged experts.

A useful chapter on the history of silicosis and asbestosis is followed by one on their ætiology, symptoms and diagnosis. Silicosis is defined as "a disease due to breathing air containing silica (SiO_2), characterized anatomically by generalized fibrotic changes and the development of miliary nodulation in both lungs, and clinically by shortness of breath, decreased chest expansion, lessened capacity for work, absence of fever, increased susceptibility to tuberculosis, and by characteristic X-Ray findings"—a definition formulated by the committee on pneumoconiosis of the industrial hygiene section of the American Public Health Association. It is accepted by the authors that the cause of silicosis is silica or quartz, although other dusts may produce definite pulmonary fibroses. The findings of a number of committees of inquiry on the pneumoconioses are quoted at length, often without comment. In regard to what are called safe concentrations of dust in various industries, it is said that atmospheric concentrations of silica or asbestos dust, which may have proved incapable of producing pneumoconiosis in one industry, may not necessarily be harmless in another. Therefore no universal standard of permissible dust concentration can be set up at the present time. This is a wise attitude to adopt, particularly when such standards as have been laid down disregard the important factor of individual susceptibility to silica or asbestos dust.

The chapter on X-ray diagnosis is the longest in the book and could with advantage have been made much shorter; in it E. P. Pendergrass has not limited himself to the X-ray appearances, but deals with subjects which should have come under the survey of other contributors. He does however include an excellent section on the X-ray picture of the normal lung correlated with anatomical studies. S. Roodhouse Gloyne's section on the pathology of silicosis and asbestosis is concise, clear and complete. The experimental pathology of silicosis and asbestosis is dealt with by Leroy U. Gardner in a fascinating manner. E. L. Middleton discusses ably the complicated occupational, preventive and legislative aspects of silicosis and asbestosis in Great Britain, and A. J. Lanza presents a similar picture of the position in the United States. For the sake of completeness chapters on the preventive and legislative aspects of the pneumoconioses in South Africa, Australia and other countries might with advantage have been included.

The editor and his contributors are to be congratulated on the successful production of this important book. They have carved out of the chaotic mass of silicosis literature a form which can be appreciated and perhaps understood by all workers in the field of industrial pulmonary diseases.

Clinical Pathology

(4th ed.) By P. N. PANTON, M.B. Camb., clinical pathologist to the London Hospital; and J. R. MARRACK, M.D. Camb., professor of chemical pathology in the University of London, and chemical pathologist to the hospital. London: J. and A. Churchill. 1939. Pp. 502. 16*s*.

IT is no mean feat to crowd, as this book does, almost the whole of clinical pathology including histology and media making into 502 pages. But the book loses a little by its excessive conciseness. For example, although liver therapy by mouth is mentioned, there is no reference to the valuable extracts now given by injection. In discussing the use of the colorimeter, the increased accuracy to be obtained with the use of colour filters is not mentioned, nor does the note on the sedimentation-rate mention the errors due to excess oxalate. It would have been helpful if the simpler and quicker methods mostly used for the estimation of sugar and chloride in the cerebrospinal fluid had been described. There are also one or two loose statements such as "Into seven large test tubes in a rack put 0·1 c.cm. of complement in tubes I to IV." But there is no cause for major criticism, and many practical points are brought out here which are omitted from larger works. The book will be a valuable addition to the library of any clinical laboratory.

Guiding Principles for Studies on the Nutrition of Populations

By Dr. E. J. BIGWOOD, professor at the University of Brussels. London: Allen and Unwin (League of Nations Publications Department). 1939. Pp. 281. 6*s*.

THE whole subject of how to assess the nutrition of people is clearly, concisely, and adequately covered in this book, and although the author is critical and sceptical, he none the less is convinced of the possibility of the task. The author wisely states that the absolute minimum period of investigation for individual households is one week. Wherever possible this period should be exceeded. With the household-book method it is advisable to extend the period to about a month. He makes clear the often forgotten distinction between two categories of waste—household waste and physiological waste. The former includes everything which escapes consumption; the latter consists of substances eliminated by the organism as the result of imperfect utilisation on its part. The importance of defining conditions of calculation in making a physiological analysis of nutrition surveys and of calculating the ratio of animal proteins to the total proteins are emphasised. The international units of the vitamins are given and their relations to other superseded units; and the present-day assessment of the units is described. Prof. Bigwood assesses the vitamin-B_1 requirement of the adult at 300 I.U. per day, of the child of preschool age at 200 to 250 I.U. per day, and of an infant at 10 to 15 I.U. per 100 calories. This will cause some heart burnings among the B_1 fanatics. There is an admirable chapter on statistics

and no-one after reading it need be frightened by the jargon of the statistician.

The rest of the book deals with the methods of discovering at the earliest possible moment the effects of the "highly unsatisfactory state of nutrition of a large part of the population of various countries," described in the Health Section (League of Nations) Report of 1932. The author believes that simple height and weight measurements *may* have some use in assessing nutrition, but discards all the more complicated indices of Quetelet, Manouvrièr, Pirquet and others. He has little use for the subjective scales of assessment of nutrition utilised by the British Board of Education and the Ministry of Health, and very naturally quotes R. H. Jones's statistical attack on this method of assessment. The author inclines to the accurately measurable signs of deficiency as a means of assessment. He would use photometry for vitamin-A deficiency, the phosphatase test for vitamin-D deficiency and either the vascular resistance or the body saturation test for vitamin C. He admits that these detailed investigations take much more time and skill than the nutrition surveys, and concludes that it will be necessary to combine dietary surveys and inquiries into the state of nutrition covering the same population groups.

Most nutritional workers will agree with his preference for estimations of the lack of the vitamins, for while it is rare to find a lack of calories and proteins with a first-class supply of the protective foods, it is common to find a satisfactory supply of calories and proteins with an almost total lack of the protective foods.

To everyone interested in research in, or in the teaching of, dietetics this excellent book is indispensable.

Frustration and Aggression

By JOHN DOLLARD, LEONARD W. DOOB, NEAL E. MILLER, O. H. MOWRER, ROBERT R. SEARS. London: Humphrey Milford, Oxford University Press. 1939. Pp. 190. 9*s*.

IT is a pleasure to find clinical psychology applied to social issues in a genuinely scientific way. The authors of this book, which is published in America for the Institute of Human Relations, take as their fundamental working hypothesis the relatively familiar theory that aggression is due to frustration and then proceed to a systematic study of aggressive behaviour to see how far this theory will require modification. An integral part of their theory is the view that frustration must always be considered in relation to instigation—namely, to what extent a desire has been stimulated. Thus not being able to afford a wireless set is a condition much more frustrating to an Englishman than to an Eskimo.

The severe frustrations imposed on children from their earliest years, the special frustrations of adolescence, and the frustration inevitable in a social life whatever the form of government are all considered scientifically and in detail with much reference to conditions in the more primitive societies. The authors make tentative attempts to correlate these frustrations with outbursts of aggression. In this they make use of such concepts of clinical psychology as repression, displacement, self-frustration and self-aggression. In a particularly interesting chapter they review the many and diverse factors found to correlate with criminality (itself a form of aggression), and make out a good case for regarding them all as indicating a higher degree of frustration than the average.

There is one type of aggression which is not discussed and which will probably need consideration in further studies. This is the tendency to see internal frustrating forces as external—to project internal frustrations on external persons or institutions and attack them there. This seems to be the chief omission in a book whose merit lies in its insistence on an economy of theory and in its serious and mostly successful attempts to group and explain a great variety of apparently discrete phenomena.

Forensic Medicine

(3rd ed.) By DOUGLAS J. A. KERR, M.D. Edin., F.R.C.P.E., D.P.H., lecturer on forensic medicine in the school of medicine of the Royal Colleges, Edinburgh. London: A. and C. Black. 1939. Pp. 331. 15*s*.

THE secret of this book's success with the student is easy. It is lucid, confines itself to matters of practical value, and is magnificently illustrated. Furthermore, it is unburdened with profuse or aged references and is fresh both in matter and style. The author has the knack of presenting essentials in a few simple phrases, and he outlines the law's relations to medicine in such clear perspective that forensic medicine begins to look like the mere application of common sense.

In this edition the book has been improved without lengthening it appreciably. Changes necessitated by alterations in the law such as the Infanticide Act 1938, or introducing new matter as under the Matrimonial Causes Act 1937, have been made, the section on professional secrecy has been rewritten, and the entire text has clearly been revised in some detail. A stray error has crept into the table outlining the maturity of the fœtus, where the 5th-month features read in error, the important calcaneus centre is post-dated by two months and there is no mention of other vital ossification centres.

The book remains nevertheless a competent and attractive outline of the subject.

Encyclopædia of Sex

By GEORGE RYLEY SCOTT, F.Z.S., F.Ph.S. Eng., F.R.A.I. London: T. Werner Laurie. 1939. Pp. 352. 21*s*.

IT was Havelock Ellis, to whom this volume is dedicated, that subjected the manifold expressions of the sexual impulse to an analysis so searching that he can be said to have converted his subject into a science. The complexities which he disclosed necessitated an elaboration of the previously somewhat scanty terminology, and the literature of psychoanalysis has added many words more. This encyclopædia is therefore not inopportune, and Mr. Scott has performed his difficult task with skill. In a preface he points out that his book, while suffering from the limitations of being a one-man work, also derives certain advantages from its single authorship. The longer articles have a consistency and unity which are absent from a symposium, however skilfully edited.

The contents are arranged in alphabetical order, some of the terms being merely defined as in a dictionary, while others are treated at length. Curiously enough, though archocystocolposyrinx and terms equally unfamiliar are included, the important word sublimation is omitted. The author makes no attempt to disguise his personal views: indeed, he sometimes expresses them with almost excessive vigour. But Mr. Scott's approach will give offence to nobody except perhaps the advocate of complete sexual liberty.

THE LANCET

LONDON: SATURDAY, JULY 22, 1939

CARBOHYDRATE METABOLISM

No disease has a background more tantalising than that of diabetes mellitus. Long before BANTING and BEST made their famous preparation of insulin the importance of this substance was realised and its discovery predicted. In the therapeutic field its success was dramatic, yet in spite of his foreknowledge the physiologist had no niche for it as had the astronomer for a new planet or the chemist for a new element. Insulin supplied a known deficiency because in its absence the machinery of carbohydrate metabolism laboured painfully and wastefully on the brink of disaster, while in its presence the wheels ran sweetly and without stress; but the deficiency had not been set out in precise terms, and to this day the manner in which insulin performs its miracle is matter for controversy. In the meantime much has been learnt and the sum of all this knowledge is set out by Professor HIMSWORTH in his Goulstonian lectures, the last instalment of which appears in our present issue. His own work is a worthy link in a chain of important contributions to medicine, typical of the present day, in which the physiological background of therapeutic advance is explored by controlled observations on human subjects, reinforced by laboratory investigation and animal experiment.

Let us attempt to set out in a few words the point that has been reached. In the absence of the liver, sugar disappears from the blood-stream, showing that this organ is responsible for the conversion of the foodstuffs, and if necessary of the tissues of the body, into glucose. Perhaps insulin controls its output and diabetes is due to its unchecked activity. The liver is a notoriously difficult organ to study experimentally, but there is evidence that in diabetes it is producing more glucose than normally, and it certainly then disobeys its normal rule of curtailing production when the blood-sugar tends to rise in concentration. It cannot lightly be dismissed as not guilty. On the other hand there is excellent evidence, as HIMSWORTH points out, that in diabetes the peripheral tissues use less glucose than normally. Here, so in effect he argues, is a strange coincidence. One would expect under-utilisation of glucose by the tissues to relieve the drain on the blood-sugar, and therefore the demand on the liver. Is it likely that the tissues and the liver should each act abnormally in a direction which increases the blood-sugar concentration, this simultaneously losing its inhibitory effect on hepatic glycogenolysis? The synchronous disintegration of a system in this way is not intellectually satisfying. HIMSWORTH's own investigations have led him to a different interpretation. He advances the view that the relative inability of the tissues to use glucose in the absence of insulin is at the root of the trouble; the high level of blood-sugar is a physiological adjustment giving the tissues a bigger "head of pressure" of glucose with which to work. It is known that this increases their power to make use of it. When the adaptive concentration surmounts the renal threshold the output of the liver must increase by leaps and bounds, for it must maintain this concentration and at the same time make good the leakage through the kidneys. The evidence for this theory, which has the merit of coherence, is ably presented by HIMSWORTH, though he has yet to find the nature of the stimulus transmitted to the liver from the embarrassed tissues. Whatever it is, it must take precedence over the mechanism by which the liver is said to respond correctively to a rise or fall in the actual blood-sugar concentration. The careful experiments of SOSKIN and his colleagues purporting to establish such a mechanism fail to exclude the possibility of a "message" direct from the tissues to the liver. HIMSWORTH suggests the brain as the most sensitive tissue.

Whatever the outcome of this part of the story, it is now certain that the mere presence or absence of insulin is by no means the only thing to be considered. The sensitivity of the body to insulin can alter considerably; it varies, for instance, with the carbohydrate content of the diet. This can only mean a second variable factor at work, the abnormal operation of which might well result in a pathological insensitivity to insulin and a different type of diabetes. It is now commonly accepted that an insulin-insensitive kind of diabetes has been established; HIMSWORTH, who has himself made large contributions to the study of insulin sensitivity, claims to be able to distinguish it by a clinical test from that due to insulin-lack. The nature of the second factor is not quite certain; indeed, it may not be a single entity. In theory, it could be something which aids or something which impedes the action of insulin, the evidence for its presence being merely the power it has of influencing the latter. In practice, our thoughts fly to the anterior lobe of the pituitary gland, which has become so important in carbohydrate metabolism since HOUSSAY showed how its removal ameliorates experimental pancreatic diabetes in animals. Here, however, we find ourselves confronted with problems no less baffling than those relating to insulin itself. Does the anterior pituitary act on the liver, the peripheral tissues, or both? What is its exact relation to insulin? HIMSWORTH stresses the importance of the evidence associating it with the liver in the production of glucose from non-carbohydrate sources. In its absence, any extraordinary demand by the tissues for glucose is not met, and when it is removed from the diabetic dog the compensatory rise of blood-sugar concentration fails to take place.

It has been shown that pituitary extracts will cause glycosuria; YOUNG has produced permanent diabetes in dogs by a course of anterior-pituitary

injections. The pancreatic lesions found in these cases might be explained by overaction of the islets in response to the excessive mobilisation of glucose by the liver, but YOUNG has also found a pituitary fraction which antagonises insulin while having no influence on blood-sugar level. This apparent versatility on the part of the anterior pituitary is a deterrent to rash speculation, though fortunately it introduces no incongruities. LONG and his colleagues have implicated the suprarenal cortex in the story, and so discoveries follow each other faster than they can be assimilated. It is too much to expect of any modern theory that it should accommodate all the known facts, but sooner or later gross surprises must become fewer, and the field be worked over again carefully to test the more comprehensive hypotheses. Of these the one put forward by Professor HIMSWORTH must rank among the most important.

SPIROCHÆTE AND WASSERMANN REACTION

THE significance of the Wassermann reaction has often been questioned on the ground that it is not a specific test since the reagin (antigen) used is as a rule an alcoholic extract of heart muscle and not the *Treponema pallidum*. Modern improvements in the technique of spirochæte cultivation have made it possible to investigate this criticism from a new angle, and the work done in the last two years by BECK [1] at the London County Council laboratories provides a more firm basis for argument. Employing a standard Wassermann technique he tested 1100 sera in parallel, using as a reagin in the one case an alcoholic extract of heart muscle and in the other a carbol-saline suspension of five strains of cultured spirochætes. Out of 542 sera from known syphilitic patients the two reactions agreed in 80·6 per cent. Of the remainder, 14·8 per cent. gave a positive spirochætal complement-fixation (Sp.C.F.) reaction with a negative Wassermann reaction, and 4·6 per cent. a negative Sp.C.F. reaction with a positive Wassermann reaction. The control group of 496 non-syphilitic sera gave a positive Wassermann reaction in 1·2 per cent. and a positive Sp.C.F. reaction in 1·6 per cent. On comparing these findings with the clinical histories of the patients it was found that the Sp.C.F. reaction was the more sensitive in all stages of syphilis and especially so in the late latent stage. While admitting the doubtful identity of the spirochætes from which the antigen of the Sp.C.F. reaction was obtained it seems clear from their practical value in the Wassermann reaction that a definite antigenic relationship exists between them and the *Tr. pallidum*. This view is also supported by the experimental evidence of their specific behaviour.

In experiments designed to show the specificity of the Sp.C.F. reaction the spirochætes were grown in a medium containing no liver, thus avoiding any non-specific antigenic action due to liver contaminants. Of the two non-spirochætal antigens used, negative reactions were obtained with 48 sera (21 of which were positive with the Sp.C.F. reaction) when an antigen prepared from *Corynebacterium diphtheriæ* was used. Using a *Leptospira icterohæmorrhagiæ* antigen, only 1 weakly positive result was obtained with 102 sera, 45 of which were positive to the Sp.C.F. reaction. With the closely related *Spirochæta dentium* a definite antigenic reaction with syphilitic sera was obtained. A total of 773 sera were tested in parallel using the Sp.C.F. reaction antigen and one made from the *Sp. dentium*. Of 407 syphilitic sera tested, 42·7 per cent. reacted positively and 27·8 per cent. negatively to both antigens, while 29·5 per cent. reacted positively with the Sp.C.F. reaction but negatively with *Sp. dentium* antigen. Thus of the total of 72·2 per cent. positive sera recorded by the Sp.C.F. reaction 59·2 per cent. were also positive to *Sp. dentium* antigen. At the same time, the latter antigen showed a tendency to give non-specific positive reactions (4·4 per cent.) with the 366 non-syphilitic control sera. From these results an antigen prepared from the *Sp. dentium*, though much less sensitive than that used in the Sp.C.F. reaction, appears to have a definite antigenic relationship to the *Tr. pallidum*.

On comparing the antigenic value of the five strains of cultured spirochætes used in this investigation, they were found to be approximately equal in sensitivity and specificity with the exception of the *Sp. dentium* which was definitely less so in both respects. The serological structure of these five strains of spirochætes was demonstrated by means of cross-agglutination, complement-fixation and absorption tests with antisera prepared against them. It appeared that there were four types present of which the *Sp. dentium* represented one. By similar tests parallel serological differences were found to exist in the antibody structure of the patients' sera reacting with these strains. Thus it was found possible to separate the antibody reacting with the standard Wassermann antigen (extract of heart muscle) from the spirochætal antibodies, and also to differentiate between each of the spirochætal antibodies themselves. During this part of the investigation it was found that with a syphilitic serum a positive reaction obtained with a *Sp. dentium* antigen was abolished by absorption of the antibody by any of the other spirochæte strains. The converse however did not hold. At the same time, absorption by non-spirochætal antigen (*C. diphtheriæ* and *Lept. icterohæmorrhagiæ*) did not suppress the positive reaction with syphilitic sera given by the *Sp. dentium* antigen. It is therefore probable that some specific factor is at work when a *Sp. dentium* antigen reacts with syphilitic serum. The next step was to show the nature of the spirochætal antigen. An alcoholic extract of spirochætes, a carbol-saline suspension of whole spirochætes, and the Wassermann antigen (heart extract) were added to separate portions of syphilitic sera and subsequently tested against these antigens. It was found that on mixing the positive syphilitic serum with the alcoholic extract of spirochætes or the Wassermann antigen the homologous antibodies were removed and there was no fixation of complement when using these

1. Beck, A., *J. Hyg., Camb.* May, 1939, p. 298.

extracts as antigens, but that when a carbol-saline suspension of whole spirochætes was used as an antigen against the same sera the result was positive. A parallel result was obtained if the sera were mixed with the carbol-saline suspension of spirochætes and then tested against the three antigens. BECK concludes that the spirochæte contains two antigens—namely, the "ubiquitous" lipoid antigen of heart muscle and other tissues, and a specific antigen which is not extracted by alcohol in sufficient quantities to be shown by absorption tests. It was found impossible to isolate this specific antigen until the method of tryptic digestion used by RAISTRICK and TOPLEY in the preparation of paratyphoid antigens was adopted. A fraction (termed F68) was obtained from the spirochætes and this reacted strongly with antispirochætal sera but not with syphilitic sera. BECK suggests that a combination of the F68 fraction with a non-specific "intensifier" of lipoid nature is necessary to bring about reactivation, since an extract of the trypsin-digested spirochætes is actively antigenic before the addition of the alcohol necessary to precipitate the F68 factor. It would be interesting to know if cholesterin would act as a reactivator of this antigenic fraction.

This work will undoubtedly stimulate fresh interest, and it makes still more obvious the need for a way of isolating, cultivating and identifying the *Tr. pallidum* beyond all question. It should then be possible not only to produce a truly specific Wassermann reaction but also to gain some understanding of the rôle of the alcoholic extract of heart muscle in the present Wassermann technique.

DIPHTHERIA IMMUNISATION IN GUERNSEY

A SCHEME of immunisation against diphtheria has been introduced this year in the island of Guernsey (including the islands of Herm and Jethou), the fruits of which will certainly be examined carefully in time to come. In studying the scheme, and its results in the future, the island's recent history of diphtheria is both relevant and interesting. The reports of the late medical officer of health, Dr. H. D. BISHOP, show that it experienced a prolonged epidemic in the years following the late war. This was succeeded by a period of slowly declining incidence, until from 1932 to 1936 the disease was almost absent from the island. Among some 10,000 children below the age of fifteen only 22 cases were notified during these five years. Under such conditions a susceptible population was built up and a fresh epidemic naturally developed. In 1937 some 60 cases were registered, and in 1938 the epidemic reached an extremely high level, unprecedented in the island's records of the present century, nearly 500 cases being reported with 14 deaths.

To this unfortunate experience the board of health responded with a compulsory scheme for inoculation, which was accepted by States early in 1938 and confirmed by Order in Council in March, 1939. In the interval caused by the necessary legal procedure free inoculation was offered by Dr. R. W. REVELL, the present medical officer, to those ready to take advantage of it, and by the end of 1938 as many as 3500 children had been immunised. The compulsory order of 1939 applies to all children who were between the ages of two and ten years on April 15 last, and in future years to all children as they reach the age of two. In course of time, therefore, virtually the whole population will have been inoculated in early childhood. So far some 6000 inoculations have been performed, comprising nearly all the children between two and ten, with volunteers of other ages. The prophylactic chosen is alum-precipitated toxoid (A.P.T.), which is being given in two doses at an interval of not less than 13 days nor more than 28 days, the first dose being 0·2–0·5 c.cm., at the discretion of the medical practitioner, and the second dose 0·5 c.cm. Inoculation is performed by the medical practitioners of the island, as appointed for the purpose by the States board of health, supplies of A.P.T. being provided to them free of charge. The practitioners are paid half a crown in respect of each administration—i.e., five shillings per completed inoculation—and are required to return details of each inoculation on prescribed forms. From these records it will be possible to gather valuable information as the years pass, relating to the children's ages when inoculated and their subsequent history as regards diphtheria. According to last year's records there were 10 cases of mild type among some 3000 immunised children. It is also reported that there was a rapid fall in the general incidence of the disease towards the end of January, 1939—some months earlier than the expected seasonal decline—and at the present time only an occasional case is developing. The main interest of the scheme must lie, however, in the future, over the next ten years or so.

It is notoriously difficult to disentangle cause and effect in inoculating during an epidemic prevalence, and less obvious problems of the duration of exposure to risk complicate simple comparisons between the experiences of the inoculated and uninoculated. In most places, too, it is hard to relate the secular trend of diphtheria to the incidence of inoculation, for the latter tends to fall, under a voluntary scheme, when the disease and the fear it engenders are absent, and thus a new susceptible population accrues. Such a falling-back will not take place in Guernsey with its inoculation year by year of all children as they reach the age of two, and the crucial evidence will be the absence of the epidemics that might be expected to recur at intervals in its small and partially isolated community. Voluntary immunisation might well, and doubtless will, be offered at a rather earlier age than two—towards the end of the first year of life—and also, at present, to children over ten; the interval between doses might, perhaps, on the available evidence, be made to approximate to the higher limit of four weeks rather than to the lower limit of two. These, however, are relatively minor points. On the general issue, Dr. REVELL and the Guernsey authorities are to be congratulated on the firm action they are taking to eradicate diphtheria in epidemic form from the island.

ANNOTATIONS

THE GLUTAMIC ACID OF TUMOUR PROTEINS

Kögl and Erxleben [1] lately presented evidence that some of the amino-acids of malignant-tumour proteins are partially racemised and that the effect is greatest in the case of glutamic acid. These findings suggested an essential difference between the proteins of normal and of malignant tissues and enabled hypotheses to be put forward regarding the mechanism of malignant change. Special importance therefore attaches to a communication from Chibnall and his collaborators,[2] who have sought to confirm the new observations. They have hydrolysed proteins derived from Crocker mouse sarcomas, a human carcinoma of the bronchus and a human carcinoma from the neck, and have separated the dicarboxylic-acid fraction by a modification of the calcium-salt method of Foreman; and in each case the glutamic-acid hydrochloride ultimately isolated in good yield showed the optical rotation characteristic of the usual l(+) glutamic-acid hydrochloride. To these English findings Kögl and Erxleben reply [3] that the method of fractionation employed by Chibnall may not lead to the eventual isolation of partially racemised glutamic-acid hydrochloride if this is present. They emphasise that there is an essential difference in the solubilities of the two forms of glutamic acid, both as the calcium salt and as the hydrochloride, and state that the *d*-form has a greater solubility than the *l*-form. Consequently they consider that only the *l*-form would have been isolated under the conditions used by the London investigators. In an attempt to confirm this, they added known amounts of *d*-glutamic acid to protein hydrolysates from normal tissues—which should contain only *l*-glutamic acid—the mixture being then submitted to fractionation via the calcium salts. The glutamic-acid hydrochloride they isolated in this way had the normal rotation. Kögl and Erxleben further say that they have now succeeded in isolating *d*-glutamic acid itself from the partially racemised hydrochlorides obtained from Brown-Pearce tumour, which indicates that the low rotation of these latter products cannot have been due to the presence of impurities with a rotation of the opposite sign. A further statement from Chibnall and his colleagues will be awaited with interest.

VASODILATOR DRUGS IN RAYNAUD'S DISEASE

THE knowledge that Raynaud's disease results from a spasm of the digital arteries encourages the constant hope that a suitable vasodilator drug may be found to relieve it. The perfect drug for the purpose would maintain an adequate blood-supply to the hands for many hours even though they were meanwhile exposed to cold; it would have no undesirable effects on other parts of the body, and it would be easy to administer. Nitrites have too transitory an action, as also have the acetylcholine derivatives unless administered by the cumbersome and somewhat difficult method of electrolysis; and recently [4] papaverine hydrochloride has been advocated, though to be effective it must be injected intravenously. The value of all such complicated forms of treatment is questionable, because the patient is apt to decide that she prefers cold fingers to a very frequent attendance on her doctor for intravenous or electrical treatment. It has also been shown [5] that the simple procedure of warming the body—for example, in a hot bath—increases blood-flow in the hands just as effectively as iontophoresis with drugs. The hot bath serves at least as a convenient control in judging the value of the newer, more complicated and expensive methods.

"HEALTH FOR 7,500,000 PEOPLE"

New York city is the largest health unit in the world, for though England's metropolis contains a somewhat larger population its health services are divided whereas those of Greater New York were unified by charter in 1901, when they were placed under a board of health consisting at present of seven members, five of whom are medical men. The American system of public-health administration differs considerably from ours and formerly was subject to political influences, but of recent years the system has been made much more stable and in New York especially the machinery is now as efficient as any in the world. A full account of the method of health government is given in the report of the commissioner, Dr. John L. Rice, for 1937, which contains a review of progress over the five years 1934–38. During this period the cost of the service has varied from 4¼ to 5 million dollars annually, but the New York citizen does not grudge the money, and since La Guardia has been mayor the success of the department has been so great as to bring conviction that money spent on health is soundly invested. The death-rate of New York in 1937 was 10·4; the infantile mortality dropped steadily from 53 in 1933 to 44 in 1937; tuberculosis mortality (per 100,000) fell from 64 to 57, and maternal mortality (per 1000 births) from 6 to 4. The last rate is computed somewhat differently from ours and the New York figure of 4 is about equal to a London rate of 3. The five-year period has been one of rapid development in the health programme; the city is divided into 30 districts of which, at the end of 1937, two-thirds were completely organised. Though the Americans have a legal health code even more complicated than ours, they use it less. "Modern public-health administrations," Dr. Rice remarks, "makes relatively little use of police measures and carries on most of its work through health education." New York in fact claims to be the pioneer of educating people to look after their own health rather than trying to enforce health by legislation—and it may be granted that its health propaganda has been remarkably successful. Two points in the American system which are superior to ours are the efficiency of the laboratories for clinical diagnosis, especially in connexion with the differentiation of types of pneumococcus, and the length of the list of diseases compulsorily notifiable. Three groups of diseases trouble New York more severely than they do London—the pneumonias, diabetes, and heart disease in early middle age. In 1937 pneumonia was charged with 6504 deaths in New York against London's 3477 and diabetes with 2669 against London's 655. In New York all fœtal deaths are reportable; of 4802 abortions notified to the department in 1937 some 25 per cent. were embryos

1. Kögl, F., and Erxleben, H., *Hoppe-Seyl Z.* 1939, **258**, 57; see *Lancet*, May 6, 1939, pp. 1049 and 1080.
2. Chibnall, A. C., Rees, M. W., Tristram, G. R., Williams, E. F., and Boyland, E., *Nature, Lond.* July 8, 1939, p. 71.
3. Kögl and Erxleben, *Ibid*, July 15, p. 111.
4. Mulinos, M. G., Shulman, I., and Mufson, I., *Amer. J. med. Sci.* June, 1939, p. 793.
5. Montgomery, H., Holling, H. E., and Friedland, C. K., *Ibid*, 1938, **195**, 794.

of less than 20-weeks gestation; as however 83 per cent. of all abortions are reported from hospitals it is probable that many early abortions are missed.

MORE PAY FOR MENTAL NURSES

THE London County Council has decided to increase the pay of both male and female nurses in its mental hospitals, and to increase holidays. Male hospital assistants and male nurses of all grades between staff nurse and head nurse are to be granted an increase of 3*s*. a week, and an increase of 2*s*. a week will be granted to women hospital assistants and women nurses between staff nurse and sister. The annual leave for head nurses and sisters is to be increased to 4 weeks—one week more than staff under their immediate control. The additional expenditure will be £10,580 in 1939–40, £22,855 in 1940–41 and about £19,313 in each subsequent year. These increases are fully justified. The apparently lavish pay of the female mental staff nurse of 46*s*. a week suffers a large compulsory deduction for board and lodging; and the advent of women social workers and occupational therapists on professional salaries has caused much heart-burning among mental nurses. The council's action should remove grumbles and help recruitment.

PULSUS ALTERNANS

OF late years little attention has been paid to pulsus alternans, either as a guide to prognosis or as a guide to the mechanism of heart-failure, yet it has never been adequately explained. The earlier observations of Wenckebach [1] suggested that at the end of the smaller beat blood remains in the heart, so that the diastolic filling and the initial tension of the fibres at the beginning of the next beat are greater, and therefore the heart—working at a better mechanical advantage—empties more completely. At the next beat diastolic filling and initial tension are smaller and a feebler beat results. More recently Green [2] has shown that derangement of one portion of the myocardium may give rise to alternation. With an electromagnetic clamp he was able to exclude a main coronary artery of the dog for part of the cardiac cycle so that the blood-supply was impaired though not entirely suppressed. In a number of hearts so treated alternation took place, and by means of optical myocardiograms it was shown that during the smaller beats the affected areas contracted only slightly if at all. Thus it seems possible that alternation in the mammalian heart may arise from a relative failure of the whole or a portion of the heart to contract at alternate beats.

In using pulsus alternans for prognosis the first essential is to be able to decide when it is present. Only in cases where it is pronounced can it be recognised by palpation of the radial pulse. Though it becomes apparent when the radial pulse is graphically recorded, this entails the use of apparatus to which few are accustomed; and actually the alternation may be equally well discovered by careful attention when taking the blood-pressure. As the cuff pressure is being lowered, there is a stage at which only each alternate beat can force its way through; then when the pressure is further lowered to the second systolic level all beats come through, so that the cardiac rate appears to be abruptly doubled. The degree of alternation may be expressed as the difference between the two levels, in millimetres of mercury. Occasionally the alternation only appears for a few beats after an extra-systole or when the heart is beating rapidly. Occasionally it may be seen in the electrocardiogram and still more rarely it appears in the electrocardiogram though it cannot be detected in the pulse.[3] Pulsus alternans is to be distinguished from alternate extra-systoles by the fact that in alternation the beats are regular, whereas in extra-systoles a longer pause follows the shorter beat. White [4] found the condition in a third of all cases showing any degree of cardiac failure and in 71 of 300 cases with cardiac or cardiorenal disease. From the standpoint of prognosis, he said, patients with pulsus alternans should be divided into two groups. The first consists of those in whom it is associated with a very rapid heart-rate (e.g., in paroxysmal tachycardia); in this group its presence does not seem to affect the prognosis. The second group is that in which the heart-rate is relatively slow; and here it is of serious significance. Thompson and Levine [5] observed over a twelve-year period 117 patients with constant pulsus alternans, the date of death of 71 being known. Of this series the 50 males lived an average of seventeen months after the detection of the abnormality, and the females eight and a half months. Only 5 of the 71 patients were under forty and in them the average duration of life was only six months after the detection of the abnormality; generally speaking it was found that the seriousness of the sign decreased with the increase in age of the person in whom it was detected.

Such an easily elicited and important sign of failure of the left ventricle should be carefully looked for in all cases of hypertensive heart disease, coronary thrombosis and luetic aortitis.

BEDBUGS IN SHIPS

THE Association of Port Health Authorities of the British Isles has issued [6] a pamphlet on the prevention of infestation of ships by bedbugs, illustrated with a coloured plate reproduced from Memo 180 Med. of the Ministry of Health. Bedbugs can be a worse nuisance on board than they are ashore, but owing to the confined nature of cabins infestation is easier to prevent. Introduction can only occur at ports, mainly through the clothing of the crew; inspection and personal cleanliness can prevent bugs from reaching the quarters. Even should they do so, infestation is unlikely to result if the quarters are kept scrupulously clean and if attention is paid to nooks and crannies which might afford suitable cover. This is less difficult in ships than it is in houses. Should infestation occur from neglect of the cleanliness requisite to prevent it, disinfestation must be adopted. The pamphlet recommends fumigation with sulphur dioxide which is safe but not always efficient, or with hydrogen cyanide which is highly dangerous but efficient if carried out properly. Fumigation with cyanide is only practicable in port in a ship temporarily laid up and carried out by experts. An old boat badly infested may be as impossible to free as is an old house, but even a reasonable degree of cleanliness together with attack on the first sign of infestation should be sufficient to assure freedom. The moral is clear enough. As with all insect pests, it is comparatively easy to prevent bugs from getting a foothold, but once they establish themselves they are

1. Wenckebach, K. F., and Winterberg, H., Die unregalmässige Herztätigkeit, Leipzig, 1927.
2. Green, H. D., *Amer. J. Physiol.* 1936, **114**, 407.
3. Hamburger, W. W., Katz, L. N., and Saphir, O., *J. Amer. med. Ass.* 1936, **106**, 902.
4. White, P. D., *Amer. J. med. Sci.* 1915, **150**, 82.
5. Thompson, W. P., and Levine, S. A., *Amer. Heart J.* 1936, **11**, 135.
6. The hon. secretary of the association is Dr. J. Greenwood Wilson, medical officer of health for Cardiff.

exceedingly difficult to exterminate. The new agreement (July 1) between shippers and seamen to coöperate in ensuring the cleanliness of crews' quarters should go a long way towards ridding the merchant service of a preventable evil.

TREATMENT OF ACUTE CHOLECYSTITIS

THE best time for operation in acute cholecystitis is debated by Ehnmark in a monograph entitled the gall-stone disease.[1] Surveying the fluctuation of surgical opinion, he shows how at one time acute cholecystitis has been treated as an urgent surgical emergency, while at others operation has been postponed until the acute symptoms have subsided. As early as 1903 Riedel advised operation within twenty-four hours of the onset of the attack; by 1920 operation during the interval was widely supported, both in this country and in Germany; while from that date onwards an increasing number of surgeons in German and in Scandinavian countries, Ehnmark finds, insisted on surgical treatment in the acute stage. Still later more support has been shown for operation after subsidence of the attack, but in Scandinavia opinion seems to have remained very much divided. The one item on which Ehnmark finds general agreement is that grave cases, with pronounced peritoneal irritation or with perforation, ought to have immediate operation unless the patient's condition is hopeless. For cases of less severity there are at present three opinions: operate at once, as for appendicitis; wait a few days, till the most acute symptoms have subsided; operate only after the attack has passed, when the temperature and pulse are normal, the abdominal tenderness has gone, and the patient is eating and is feeling pretty well. Ehnmark thinks that surgeons who advocate postponement till the morbid process is at an end are offering a theoretical opinion on which they could not act in practice. To obtain complete healing takes so long—several weeks or months—that the patients would be discharged from hospital, and would be unlikely to consent to readmission at the desired time. He himself proposes the term "clinical interval" to designate the stage of the disease in which temperature has become normal, abdominal symptoms and possible jaundice have disappeared, and the patient may be allowed out of bed. From his own careful analysis of 257 operations for acute cholecystitis performed in the surgical clinic of the University of Uppsala, he is convinced that operation is best performed in this clinical interval.

The most significant feature of the Uppsala figures is the drop in operative mortality in the cases treated during the last period under survey—namely, 1932–35. In the first two periods (1922–27 and 1928–31) it is about equally high (14·8 and 13·3 per cent. respectively), but in the third it has dropped to 3·5 per cent. Having tried to examine all the factors that could have contributed to this result Ehnmark is persuaded that the sole significant change was that during the years 1932–35 the patients were operated on in a later stage of the disease, or after a longer time in hospital. Since 1932 almost all the moderately severe cases have been operated on in the clinical interval, whereas before that date most of them were operated on while the attack was in progress. Even of the severe cases, less than half have, since 1932, had the operation in the acute stage, whereas in 1922–31 it was the exception to wait.

Severe acute cholecystitis Ehnmark regards as a disease with a high mortality. In the worst cases, although the risk is great, he thinks immediate operation is right, unless the condition is quite hopeless. Cholecystostomy is then his choice. In other cases it is reasonable to expect spontaneous improvement, and cholecystectomy undertaken during the "clinical interval" bears, in his opinion, a comparatively small risk. It is not the practice in Uppsala to operate for the first attack, unless life is in danger.

DEATH OF A GORILLA

"Moina" only survived the death of her spouse "Mok" for about seventeen months. She refused food, lost interest in life, and became savage with her keepers when roused. In May she developed cracks and abrasions on her hands and feet which she picked and gnawed until they became large septic sores; these it was impossible to dress or treat otherwise than by squirting antiseptics on them through the bars of her den. Finally gangrene of the right foot and leg developed and she died of sepsis and toxæmia from the gangrenous leg. At the post-mortem examination Colonel A. E. Hamerton, pathologist to the Zoological Society, could find no pathological lesions others than those associated with septicæmia. Histological examination of the peripheral arteries and nerves has not so far revealed anything to account for the primary lesions on hands and feet. These, he thinks, were probably traumatic in origin.

CLINICAL APPLICATIONS OF TESTOSTERONE

THE last few months have seen several attempts, especially in the United States, to multiply the uses of testosterone. In view of the resemblance between many androgens and progesterone, Rubinstein and Abarbanel[1] have tried testosterone propionate for dysmenorrhœa, and report complete relief in 16 out of 26 cases, and partial relief in 4. The patients that benefited were those with "essential" dysmenorrhœa, attributed largely to hormonal imbalance, and in those with structural abnormalities of uterus or tubes the symptoms were sometimes made worse. The remedy works, it is supposed, by depressing pituitary gonadotrophic secretion, reducing the formation of œstrogen, and favouring luteinisation and the progestational response of the myometrium.

In a different field Edwards, Hamilton and Duntley[2] claim to have used testosterone propionate with success in the treatment of organic disease of the peripheral vessels. This use of the hormone was first suggested by its general vascular effect on the skin—arterialisation in such regions as the head, palms and soles, as revealed by a recording spectrophotometer—and benefit is reported in three men with thrombo-angiitis obliterans and in four cases of arteriosclerosis. In reviewing the undisputed clinical uses of testosterone, Kearns[3] concludes, first, that it is an effective means of substitution therapy in castrated or cryptorchid patients, and secondly, that inunction of free testosterone in a greaseless base is as effective as intramuscular injection of the propionate. The inunction of male hormone which has been studied in this country by Foss[4] is deemed

1. The Gall Stone Disease, by Ernst Ehnmark, *Acta chir. scand.* 1939, **82**, suppl. 57.

1. Rubinstein, H. S., and Abarbanel, A. R., *Amer. J. Obstet. Gynec.* April, 1939, p. 709.
2. Edwards, E. A., Hamilton, J. B., and Duntley, S. Q., *New Engl. J. Med.* May 25, 1939, p. 865.
3. Kearns, W. M., *J. Amer. med. Ass.* June 3, 1939, p. 2255.
4. Foss, G. L., *Lancet*, 1938, **2**, 1284, 1308; 1939, **1**, 502.

useful because it imitates the steady, continuous androgenic action of normal testes, and because it obviates frequent contact with the physician.

THE HANDS OF THE AMATEUR GARDENER

THE Manchester city coroner has been warning gardeners of the danger of wounds contaminated with manured soil. The case that inspired his comments was that of a solicitors' cashier who pricked his finger while tying up roses and died soon afterwards from infection of the finger. Scratches and pricks of this kind are almost inseparable from gardening, and the question is how far these wounds must be taken seriously. In his first acquaintance with the casualty department of his hospital, the student learns that wounds contaminated with soil are regarded with concern because of the possibility of infection with the organisms of gas-gangrene or with tetanus spores that will become active in damaged tissues. Wounds severe enough to reach the casualty department receive such thorough treatment that the incidence of tetanus there must be very low; but minor lesions are a different matter. The horny hands of the professional gardener are unlikely to be infected by trivial injury such as punctures from thorns, but the week-end gardener has a readily vulnerable epidermis, and should his wound become septic or show necrosis tetanus becomes a very real danger. The perils of manured soil should be as well known to the gardening public as to the doctor; and though it is too much to expect the amateur gardener to rush to the doctor with every lesion, he should know of the special risk from penetrating wounds, and the advantage of antiseptic treatment of those that are more superficial.

LONDON HOSPITALS IN WAR-TIME

ON June 30 a letter appeared in the press signed by twelve chairmen and treasurers of London teaching hospitals, who complained that lack of a director, charged with full responsibility for the war-time organisation of the London hospitals, has meant that there is at the moment nothing more than an outline scheme on paper. The work of the sectors, it is widely felt, is not sufficiently coördinated, and many decisions of policy remain outstanding. Mr. Walter Elliot, the Minister of Health, on July 13 informed representatives of the hospitals of the Ministry's plan for ensuring coöperation between the medical group officers and the lay sector officers. Dr. J. H. Hebb, director-general of emergency medical services at the Ministry, will meet the medical group officers every Monday; Mr. Neville, the principal assistant secretary in the Ministry responsible for the administrative side of the scheme, will meet the lay sector officers every Tuesday; and Sir Girling Ball, chairman of the medical group officers, and Sir George Cory, chairman of the lay sector officers, will meet Sir George Chrystal, permanent secretary of the Ministry, every Wednesday. At this last meeting Sir Frederick Menzies, medical officer of the L.C.C., and Sir Bernard Docker, representative of the London voluntary hospitals, will be present; also Dr. Hebb and Mr. Neville. Immediately after it Sir George Chrystal will report to the Minister on matters of policy, and thus the Minister will himself deal direct with London's special problems. While expressing the view that these arrangements would go a long way towards meeting the immediate situation, and should be given a trial, the hospital representatives feared that Mr. Elliot might find it impossible, owing to his other burdens, to continue to play the personal part he had indicated.

THE UNNATURAL ATHLETE

ATTEMPTS to introduce more vitality into professional football have become so widespread that the British Medical Association has decided to inquire next autumn into the alleged benefits of using endocrine extracts for this purpose. Hitherto, as Böje remarks,[1] there has been little serious research on the adventitious aids to athletic success. His own paper on the subject ranges over a wide field from cocaine to hormones and from glucose to vitamins. A rough-and-ready classification puts the preparations capable of "doping" athletes in three main categories according to the risk involved. Thus cocaine, Benzedrine (amphetamine), nitroglycerin, digitalis, strophanthin, certain hormones and caffeine in large doses are in Böje's opinion definitely dangerous. At the other end of the scale, ranking as quite harmless, are glucose, oxygen and vitamin B_1. In an intermediate category he would put the cardiac stimulants, Coramine and Cardiazol, ultraviolet irradiation, various salts and small doses of alcohol. Böje admits that there are certain substances which, when given with the skill which comes from a working knowledge of pharmacology, are capable of enhancing athletic activities and achievements. But when he singles out one drug after another for detailed discussion, there is more often that not some catch or "but" which robs the reader of any whole-hearted faith. From the standpoint of sport, this is perhaps all to the good.

Mr. E. L. SHERIDAN, F.R.C.S.I., has been nominated, by the Privy Council, chairman of the Dental Board of the United Kingdom in succession to the late Sir Francis Acland. Mr. Sheridan, who is professor of dental surgery in the National University of Ireland, was an original member of the board and has for the past ten years represented qualified dentists practising in Ireland. He is one of the additional members of the General Medical Council appointed by the Privy Council under the Dentists Act, 1921.

1. Böje, O., *Nord. Med.* June 30, 1939, p. 1963.

NURSING COURSES FOR SCHOOL-GIRLS.—Last year the General Nursing Council passed a resolution (*Lancet*, 1938, **1**, 867) approving the division of the preliminary state examination into two parts, the first of which might be taken before entering hospital, provided that the candidate had followed an approved course of instruction at school. The Board of Education has now issued a circular (No. 1471) explaining the arrangements which they have made in coöperation with the council for courses in anatomy, physiology and hygiene to be given in secondary schools and technical schools for girls who wish to enter the nursing profession. In view of the serious shortage of nurses, the board hope that many schools will find it possible to establish prenursing courses which they can recommend to the council for approval. In a report published some months ago the Interdepartmental Committee on Nursing Services pointed out that the number of probationers required annually was 12,000. This figure is much in excess of the possible supply of entrants from secondary schools. The circular, therefore, follows the report in recommending that in addition to courses in secondary schools there should be evening courses in technical schools which can be taken by girls and young women already in employment. There may also be whole-time day courses in technical schools for girls and young women who have left school and are not employed or can afford to leave their employment.

SPECIAL ARTICLES

VENEREAL DISEASE

THE ninth Imperial Social Hygiene Congress met in London last week and on Thursday held discussions of immediate medical importance.

THE SITUATION AND THE REMEDIES

Colonel L. W. HARRISON, presenting a Review of the Position in Respect of Syphilis and Gonorrhœa, said that the number of cases of syphilis (in all stages) dealt with for the first time at the centres in England and Wales (including transfers and those that returned after being struck off the books in previous years) had fallen from 42,800 in 1920 to the provisional figure of 18,034 in 1938; and the number of infections of less than a year's duration (5238 in 1938) had fallen by 42 per cent. since 1931. On the assumption that 40 per cent. of the 42,800 cases dealt with in 1920 were fresh infections (some observers put the figure at 66 per cent.) the decline in fresh cases from 1920 to 1938 could justifiably be taken as about 70 per cent. The infantile mortality from syphilis had risen from 1·34 per 1000 live births in 1912 to the peak figure of 2·03 in 1917; but thereafter, apart from one setback, it had declined steadily to 1·12 in 1922, 0·47 in 1932 and 0·20 (provisional) in 1938. The latter figure represented one-sixth the number in 1912 and one-tenth that in 1917. Further evidence of the decline of syphilis was provided by the results of routine tests in pregnancy: in Battersea the percentage of positive tests fell from 3·5 in 1924 to 0·7 in 1936, in Cardiff the figure declined from 3·1 in 1925–28 to 1·8 in 1935, and in Glasgow the figures were 4·9 and 1·8 in 1925 and 1935 respectively. Between 1931 and 1938 the number of cases of congenital syphilis seen for the first time in treatment centres (excluding transfers and cases registered in any previous year) had declined in all age-groups under fifteen years (in 1938 in the age-group 5–15 years the provisional number of cases, 448, represented a 39 per cent. decline); but over fifteen years, as was to be expected, there was no decrease.

There was thus, said Colonel Harrison, a substantial decline in the incidence of fresh syphilis in England and Wales in spite of defaulting; but could we look forward to a reduction in the incidence of late effects or would a large proportion of defaulters die? He thought that the evidence was against this fear. Firstly, correlating late cases and the amount of treatment received, it was found that in one series of 936 cases (809 with cardiovascular or neural syphilis), of 931 whose history was known, only 8 had had more than an average course of ten injections in the early stages. Secondly, despite the increase of syphilis in England during the late war (87,000 of the total of 102,000, excluding the Navy and demobilisation figures, were estimated to be fresh cases), though the crude annual death-rate from aneurysm per million living had risen in females from 11 per million living in 1922 to the provisional number of 26 in 1938 (the figures for males rose from 45 to 52 in the same period), the corresponding figures for tabes were actually reduced from 7 to 5 in females and from 36 to 24 in males, and for G.P.I. the figures declined in females from 15 to 10 and in males from 77 to 32. Therefore even slight treatment—approximating to one modern course—seemed to have prevented a great amount of aneurysm developing. Nevertheless it was necessary to redouble efforts to get women under treatment in order to reduce the incidence of fresh syphilis and the late effects in future years. Colonel Harrison uttered a warning against blind acceptance of the first positive Wassermann reaction in pregnant women, even when backed by a positive Kahn; although routine testing was valuable in the prevention of congenital syphilis it might be harmful if used as more than a pointer. Secondly, since it appeared that, unlike bismuth, the arsphenamines and mercury failed to reach the fœtus in effective amounts until the latter part of pregnancy, the practice of intensifying arsenical treatment, while excluding bismuth, was probably without effect.

The position as regards gonorrhœa had been favourably affected by the introduction of sulphonamide therapy. But dangers attended failure to use the drugs in optimum concentration, and often practitioners instructed the patient to treat himself, with unhappy results. Action against present ignorance might take the form of notices sent out by V.D. officers and medical officers, and the British Medical Association might arrange local discussions.

Dr. R. C. L. BATCHELOR (Edinburgh) said that under the Edinburgh venereal-diseases scheme reproduction is advocated both indirectly—for example, by providing attractive premises for the expectant mother—and directly by optimism about the prospect of cure, which was justifiable perhaps with the present remedies for syphilis and gonorrhœa. He thought a hospital-trained sister with special knowledge and experience in venereal diseases was more likely to be successful in social-service work than a male almoner. There was less need of hostels for women and girls now that chemotherapy cleared up infections rapidly, and adequate medical supervision was ensured by admitting girls to hospital for inpatient treatment during the early infectious stages of the disease: furthermore, the struggle for a livelihood could be resumed earlier. Turning to the advisability of continuing routine Wassermann tests in expectant mothers Dr. Batchelor pointed out that the results of 15,763 blood examinations at the Royal Maternity Hospital and the Elsie Inglis Memorial Maternity Hospital between Nov. 1, 1934, and Oct. 31, 1938, showed the percentage of positive cases to be 0·7 and 3·3 respectively. Although the incidence of syphilis was small, its detection could be of great preventive value to the whole family; its omission would therefore be a retrograde step, especially as in a time of national emergency there would be an increased incidence of syphilis. Dr. Batchelor concluded that a venereologist should concern himself both with the patient and the social implications of his particular case: we were still too easily acquiescent in the degrading and depressing influences that led to venereal disease.

Dr. A. O. FERGUSSON ROSS (Liverpool) suggested instruction in the use of the sulphonamide drugs through postgraduate classes for panel practitioners.

Lieut.-Colonel E. T. BURKE (London) emphasised the necessity of looking into the history and of testing the cerebrospinal fluid, as well as the blood, to detect syphilis in females. The routine test in pregnancy was in his view invaluable, but the possibility of a "false" negative in women who were undoubtedly syphilitic should not be overlooked. In chemotherapy hæmatological examinations were necessary to avoid overdose; but it was equally important to

guard against carriers and relapses due to inadequate dosage; also the test of cure should be more stringent. He emphasised that the Wassermann testing of voluntary blood-donors was essential, but was not being done.

Dr. ROBERT FORGAN (Essex) considered that advice regarding chemotherapy would be best offered by medical officers of the Ministry rather than venereal-diseases officers. He believed that improved results could be got from a measure of compulsion in treatment.

Dr. LETITIA FAIRFIELD (London) said that among over 13,000 pregnant women attending London County Council clinics during 1935 the percentage of positive Wassermann and Kahn reactions was only 0·83 (excluding "suspicious" cases), and a similar low figure was obtained in 1936. In 1935 98 per cent. of all positive women, 97·2 per cent. of those who had four injections or more of arsphenamine, 95 per cent. of those who had less than four injections, and 95 per cent. of those who had none, went to term. Although to these 13,000 women only 3 children as yet known to be syphilitic were born, it was impossible before the lapse of thirty years to prove that the remainder of the children whose mothers gave positive tests were safe. Dr. Fairfield urged the importance of following up the parents in cases of ophthalmia neonatorum.

Dr. A. MIDDLETON HEWAT (London) contended that there is no agreement among clinicians about the details of chemotherapy and suggested that practitioners should send their patients to clinics for a satisfactory test of cure. He favoured separate clinics for cases with vaginal discharge, and said that although he had found no change in hostel attendances among pregnant girls chemotherapy had resulted in a falling-off of attendances of nulliparous girls. In his experience girls would not go into a hospital bed.

Colonel HARRISON said that tissue resistance probably played a part in the lower incidence of syphilis in women. The disease was less damaging to a castrated animal under the influence of œstrin than it was to a normal male animal.

Dr. BATCHELOR said that in his experience the female nurse almoner brought back over 90 per cent. of defaulters. The relapse-rate of 1102 cases receiving antisyphilitic treatment at the Edinburgh clinic was 0·9 per cent. in males (average of 3·6 unit courses) and 3·7 per cent. in females (average of 3 unit courses). Of 413 notifications of ophthalmia only 5 per cent. proved to be gonococcal. Referring to blood-donors he recalled that McClusky of Glasgow had reported 2 cases of donors who were incubating syphilis and developed it later; a Wassermann reaction was advisable two months before giving blood, the patient being put on parole in the interim.

Mrs. C. NEVILLE-ROLFE, secretary-general of the British Social Hygiene Council, in seconding a vote of thanks to the chairman, Sir ARTHUR MACNALTY, remarked that whereas congenital syphilis had decreased as a whole, the problem had not been tackled in such areas as Cornwall and Devonshire.

ASCERTAINMENT

At the second discussion, with Prof. JAMES YOUNG in the chair, Dr. ERNEST PREBBLE (Liverpool) spoke on the ascertainment of venereal disease in a community. Any census, he said, must include clinic and hospital cases (the latter being chiefly late ones), cases treated by specialists and general practitioners, and self-treated cases; the latter group, owing to the 1917 act, would not present such a problem as it had in the United States. Self-treatment, however, had increased here since the advent of sulphonamide therapy, and the sale of all drugs of this group should be restricted. Methods of assessing the incidence of venereal disease in the U.S.A. included the sending of a questionnaire relating to the number of cases under treatment or observation on a given day, together with a numbered confidential inquiry form, to every person concerned with the treatment of these diseases; the inquiry was repeated if necessary. The tabulated figures obtained gave what was called the treatment "prevalence" rate, this in the U.S.A. was 7·7 (syphilis 4·3, gonorrhœa 3·4) per 1000 of population, corresponding to totals of 683,000 and 493,000 cases under observation or treatment for syphilis and gonorrhœa respectively; it was lower in cities of over 100,000 population than in smaller cities. The annual incidence of fresh infections with syphilis and gonorrhœa was respectively 4 and 8 per 1000; 71 per cent. of patients with syphilis and 51 per cent. of cases of gonorrhœa sought treatment in the late stages. A second measure was the monthly census. From 1929 onwards questionnaires had included the number of cases accepted during one specified month. The total number of early cases so obtained, multiplied by twelve, gave the "incidence" of syphilis, often stated as "518,000 fresh infections from syphilis never before treated come to doctors each year." Mass blood-testing of different occupational or other groups was also undertaken. In the U.S.A. some 2 or 3 million people had been tested, from which the average prevalence of syphilis in the general population was deduced as around 5 per cent., although great variation occurred in different groups, being highest in the coloured race. Whereas in 1935 in the U.S.A. the percentage of early cases seeking treatment was estimated at 43 and 57 for syphilis and gonorrhœa respectively, the corresponding figures in Liverpool in the same year were 13·8 and 86·2; syphilis was apparently more prevalent in the U.S.A., or perhaps cases of gonorrhœa escaped the census.

The procedure in Canada followed in general the lines of the American questionnaire and the 1937 census in Toronto was completed in six weeks, 97·3 per cent. of the recipients sending in a reply. A summary of the results indicated a total incidence of venereal disease of 9·59 (syphilis 5·64, gonorrhœa 3·95) per thousand population. The sex-incidence of syphilis was 57 per cent. males and 43 per cent. females. Compared with the surveys in 1929 and 1931 early cases of syphilis had decreased by half and late cases had increased by more than half.

In the discussion it was maintained that a census is desirable in Great Britain.

Mrs. NEVILLE-ROLFE pointed out that the relative incidence of gonorrhœa and syphilis in the United States Army and Navy is about 8–9 to 1—that is to say, the figures were comparable with those for this country.

Dr. S. M. LAIRD (Stoke-on-Trent) described observations in various parts of Staffordshire in 1937, which showed a percentage of defaulters in early syphilis in the region of 50 per cent., irrespective of age-groups, the figure for gonorrhœa being about 30 per cent. Contacts outnumbered those treated.

Colonel HARRISON considered it hopeless to define the defaulter-rate since the standards of complete test of cure and treatment were very variable.

MEDICINE AND THE LAW

Amputation of Leg after Childbirth

THE House of Lords decision in Marshall *v.* Lindsey county council in 1937 probably represented the high-water mark of a plaintiff's success against a doctor or a hospital in the matter of puerperal fever. Last week the Lord Chief Justice dismissed a much weaker claim in Mitchell *v.* Outred and others, without the defendants being called upon to make their reply. Mrs. Mitchell went into the Crayford (Kent) Russell Stoneham memorial hospital in 1937 for her first confinement. Dr. T. C. Outred of Northfleet attended her. On May 1 a healthy child was born; the child is still doing well. According to Mrs. Mitchell's counsel, her temperature rose after the childbirth; on May 21, at the wish of her husband, she was removed to her own home; a few days later she complained of a pain in the right thigh which Dr. Outred attributed to neuritis. On June 4 Dr. Outred discontinued his attendances as he was going to a practice several miles away. His former partner, Dr. W. A. Rogerson, took charge of the patient. Her temperature rose to 104° F.; a second opinion was taken; puerperal fever was diagnosed; the patient was admitted to the Miller General Hospital at Greenwich where her leg was amputated on June 24. Mrs. Mitchell now claimed damages on the ground of negligence from Dr. Outred, the matron of the Crayford hospital, and the president, chairman, general secretary and treasurer of the hospital. It will be remembered that in the Marshall case the Lindsey county council provided a maternity home and placed it under the direction of a skilled staff. A patient in the home contracted puerperal pyrexia. A second patient applied for admission and was admitted without being told of the existing infection. The second patient contracted puerperal sepsis and the House of Lords held that the county council was liable. Mrs. Mitchell's case was much less definite. She alleged that, owing to the negligence with which she was treated by the doctor and the hospital, she developed septicæmia consequent on puerperal fever with the result that her right leg was amputated. At the close of her case the Lord Chief Justice ruled that there was no evidence to go to the jury against any of the defendants. It had been established that on June 24 it was unhappily necessary to amputate her leg, but there was no evidence to connect the amputation with any negligence or breach of duty on the part of any of the parties whom she was suing. Judgment was therefore given for the defendants with costs. Rejecting an application for a stay of execution, Lord Hewart expressed the opinion that the action was entirely misconceived.

The experienced counsel who represented Mrs. Mitchell could hardly take up the position that the existence of puerperal fever was in itself a proof of professional negligence and a proper ground for the award of damages to a patient. In so far as the particulars of negligence on which the claim was based are to be found in his opening address to the jury, it may be noted that he dwelt on the fact that Dr. Outred took no second opinion and made no blood-tests. Counsel drew attention to the duty to report the high temperature to the medical officer of health. He described certain entries in the temperature book as danger signals which should have warned the doctor and the nurses of the need of great care. The actual temperature chart at the hospital had been destroyed two years ago; counsel said it was obvious that the temperature chart was not kept in the usual way. Puerperal fever, he said with full truth, is usually caused by infection from outside; doctors and nurses therefore wear sterilised masks, gloves and clothing while attending a patient and the treatment must be completely antiseptic. These precautions were not taken at Mrs. Mitchell's confinement (there was evidence subsequently that Dr. Outred wore gloves and a rubber apron but not a mask or gown); their absence might well have caused her infection. Counsel observed that Dr. Outred administered Prontosil to Mrs. Mitchell while she was in the hospital and that apparently this step had the effect of reducing the temperature; afterwards he used the drug intermittently; "in so doing he obscured the signs of puerperal fever which would have warned him if he had seen them." Other complaints, challenged in cross-examination of the plaintiff, were that the hospital was understaffed and that the patient was asked not to ring her bell at night. In concluding his statement to the jury, counsel announced that doctors of eminence would say that the history of the case immediately suggested to them that Mrs. Mitchell had suffered from puerperal fever; they could not suggest anything else which would result in the amputation of her leg.

The expert witnesses to whom this announcement referred suffered from the disadvantage that their evidence was a matter of surmise at a time long distant from the material events in the case. Dr. J. D. S. Flew, physician to the antenatal department of Queen Charlotte's Hospital, expressed the view that, from the account of the patient's symptoms which he had heard, she must have been suffering from septicæmia when she returned to her home, and that the loss of the leg must have been due to puerperal fever. "How often did you see Mrs. Mitchell when she was ill? inquired the Lord Chief Justice. "Never," replied the witness. Dr. Flew emphasised the importance of the wearing of masks in the labour room and the use of masks and sterile gloves by nurses for the first week after the birth of the child. He was asked in cross-examination whether at Queen Charlotte's there had not been about 5 per cent. of cases of puerperal fever among patients in 1937 in spite of every precaution against infection. He said he thought the figure sounded rather high. Does this not show, he was asked, that, do what you may, you cannot escape the possibility of puerperal fever? The witness agreed. "The occurrence of puerperal fever," continued counsel for the defendants, "does not prove that there has been any fault anywhere?" "I did not say it did," he replied. He agreed that many practitioners did not use masks or gowns during a confinement and that the regulations for midwives issued in 1939 do not prescribe that a midwife should wear a mask or gown or gloves at a confinement. Dr. R. M. Fry, assistant director of the research laboratories at Queen Charlotte's, repeated and confirmed previous evidence as to the advisability of gloves, gowns and masks and the need of watching carefully every temperature in the post-natal period. The loss of Mrs. Mitchell's leg, he said, might be due to the thrombus which originated the embolism in the lung, giving rise to a cough from which witnesses had said that she suffered; but the case was an unusual one; he had never seen such a case before. "Are you aware," asked Lord Hewart, "of the facts immediately preceding the amputation?" The witness answered in the negative. A third expert witness, Mr. Norman White, assistant obstetric surgeon to University College Hospital, gave similar evidence of the need of precautions against

infection and of further investigation when a patient's temperature rose. He was asked in cross-examination whether the man in charge of the case on the spot, assisted by competent nurses, was not in the best position to judge the proper course. The evidence of this witness concluded the plaintiff's case, and, after argument by counsel, the Lord Chief Justice dismissed the action as already stated.

Rejuvenation Fraud

If Mrs. Mitchell's case failed because she proved effect but not cause and because the claim remained a matter of surmise, a plaintiff who had suffered from treatment at a "natural health clinic" and who had received attention from two "doctors," whose names are apparently not to be found in the Medical Register, won an easy victory in an adjacent court on the same day (Shallard *v.* Arline and Gustavson). One of the defendants, Miss Arline, carried on the clinic at 14, Herbert Crescent, Knightsbridge; the other, Carl Gustavson, administered the treatment. Mrs. Shallard based her claim not only upon negligence and breach of contract but also upon fraud. The judge found that the two defendants divided the proceeds of a fraudulent scheme for extracting money from a middle-aged woman in indifferent health. He hoped that other women would profit by the lesson of the plaintiff's disagreeable experience.

Mrs. Shallard's evidence was that, after nursing her husband for several months until his death at the end of 1937, she was persuaded by Miss Arline to try the Gustavson treatment at the clinic. She was given a pamphlet about his facial and other rejuvenation treatment which was described as absolutely harmless and certain in its efficacy. She met Gustavson, who said that he would make her fit and well but that he had never treated anyone who had not first been examined by a Dr. Macnab. She paid two guineas for this examination and was told by Gustavson that "Dr." Macnab (whom her counsel declared not be a doctor at all) had reported that her condition was good except for the toxins in her body. These toxins the Gustavson treatment would remove. His fee would be 200 guineas. On March 14, 1938, Mrs. Shallard entered the clinic. She was put to bed and some substance was applied to her face which burned her. She was given tablets which made her vomit. Next day there was similar treatment. Her eyes became painful. She was placed in a bath of Epsom salts. On March 18 bandages were taken off which tore the skin from her forehead and neck, leaving them sore and bleeding. She was in pain until March 28 when she insisted on being driven home. Her condition improved by July; in August she had a nervous breakdown, and from September until the spring of this year she was in bad health. Two medical practitioners who saw her in October gave evidence of her condition at that date. One of them, a dermatologist, said that her face and eyelids were swollen: there was some conjunctivitis: her skin was thickened and had a mask-like appearance: she complained of burning and irritation. Her condition, he said, was consistent with the experiences of which she complained. The other doctor spoke of having observed acute symptoms of heart-failure for which he injected strychnine. Asked by the judge how the heart-failure could have resulted from the facial treatment, the witness said one cause of it might be worry and fright at the thought of possible blindness and disfigurement.

Miss Arline's defence was a denial that she and Gustavson were partners, though she said that, believing his treatment to be thoroughly satisfactory, she placed rooms in her clinic at his disposal for a consideration of one-third of his fees. She maintained that, if she had brought Mrs Shallard and Gustavson together, she had done so in good faith; she believed the statements in his brochures; she had not been present at the patient's actual treatment and was not responsible for its results. Gustavson did not come into court. The judge remarked that he had left Miss Arline to defend the case alone in a way which belied the manly appearance presented by him in the illustrations to his brochure. Plaintiff's counsel stated that Gustavson, a Swede, had left the country; the Home Office apparently would not allow him to remain. At any rate efforts to serve him with a writ were unsuccessful. The judge said there was no evidence before him to show whether, at the time when Mrs. Shallard received treatment, the clinic in Knightsbridge was licensed by the London County Council; if it was licensed, it was unfortunate that no L.C.C. inspector knew what was going on.

Agranulocytosis following Chemotherapy

An inquest was held in Manchester on July 15 on a woman of 36 who died in Manchester Royal Infirmary on the 11th. She had been admitted to the Devonshire Hospital, Buxton, on May 26 with rheumatism; she also had chronic catarrh and heart trouble. Treatment of the rheumatism progressed favourably, but she developed erysipelas. This was treated with sulphanilamide, of which she had 1·5 grammes daily for 16½ days. Then the treatment stopped, but it was started again five days later, when she had the same dose for 3½ days. On July 7 she complained of a dry throat and a slight swelling of the tonsils was noticed. Next day the swelling had increased and on the 9th the patient was transferred to Manchester. Mr. W. F. Nicholson, resident surgical officer, said that she was then very ill and it was found that the white-cell count was much diminished and that the polymorphonuclear leucocytes amounted to only 2 per cent. The diagnosis of agranulocytosis was supported by the results of post-mortem examination. In answer to the coroner Mr. Nicholson said that in reported cases to which he had referred the patients had all taken considerably larger doses of sulphanilamide than were given in the present case. He added that the condition was exceedingly rare. In recording a verdict of death from misadventure, the coroner said he was satisfied that proper treatment had been given at the Buxton hospital and that the woman was one of the small number of people upon whom the particular remedy had a bad effect.

THE LANCET 100 YEARS AGO

July 20, 1839, *p.* 638.

Questions set in the London M.B. examination.

SURGERY

1. Define common acute inflammation, its characteristic symptoms and causes.
2. State the various terminations of inflammation, with the treatment of each respectively.
3. How do you class wounds arising from external violence? Describe their nature, symptoms, and treatment.
4. What is the process by which union is accomplished in a simple fracture of a cylindrical bone?
5. Give the different dislocations of the shoulder-joint, their symptoms and mode of reduction.
6. What is hydrocele—its palliative and radical treatment?
7. Enumerate the different situations and names of herniæ, with the various conditions in which they may be found.
8. Describe the operation for popliteal aneurysm.

MEDICAMENTS AND PUBLIC HEALTH

THE British Pharmaceutical Conference was held at Birmingham from July 17 to 20. In his address from the chair, Mr. J. RUTHERFORD HILL said that he was attracted to the subject of medicaments and public health by two events. The first was a monograph by Prof. A. J. Clark dealing with the harm done by proprietary medicines in the production of addiction, accidental poisoning, dangers associated with self-medication, misinformation of the public and financial loss. The problem was summarised in section 22 of the Report of the Select Committee on Proprietary Medicines of 1914 in the words: "For all practical purposes British law is powerless to prevent any person from procuring any drug, or making any mixture, whether potent or without any therapeutic activity whatever (as long as it does not contain a scheduled poison), advertising it in any decent terms as a cure for any disease or ailment, recommending it by bogus testimonials and the invented opinions and facsimile signatures of fictitious physicians, and selling it under any name he chooses, on the payment of a small stamp duty, for any price he can persuade a credulous public to pay." The Select Committee found that the trade in secret remedies constituted a grave and widespread public evil, that the existing law was chaotic and had proved inoperative and that consequently the traffic in secret remedies was practically uncontrolled. The Committee concluded by saying "That this is an intolerable state of things and that new legislation to deal with it, rather than merely the amendment of existing laws, is urgently needed in the public interest." So far the only amendment of that unsatisfactory position is the Venereal Diseases Act (1917), which forbids treatment of these diseases otherwise than by duly qualified medical practitioners and expressly forbids the advertisement or sale of any remedies purporting to cure these diseases.

Prof. Clark concluded his monograph by saying: "The health interests involved in the sale of medicines are vastly more important than the million pounds which the Government obtains from the taxation of proprietary remedies. The clearest line for the Government to take would be to say that it did not wish to tax any remedy that was beneficial to the health of the people and wished to suppress all those that were useless and harmful. This would imply the abolition of the Medicine Stamp Duty." The second event was the debate in the House of Lords in July last year, when Lord Horder moved for papers in view of the enormous growth in the quack medicine trade and the incongruity of exercising no control over the deleterious effects of such trade upon health at a time when serious effort is being made to improve national fitness. He rightly describes the advertisements of many of these "proprietary medicines" as "grossly misleading and fraudulent." He pointed out that in continental countries, and in the United States of America, exploitation of the people by means of proprietary medicines was forbidden, while in our own Dominions of Australia and Canada offenders were liable to heavy penalties for making false or fraudulent claims. It was humiliating to think that Great Britain remained complacent in face of this growing menace to the health of her people.

The problem has at the moment been brought prominently to the front by the recent intimation by the Chancellor of the Exchequer that he had decided to abolish the Medicine Stamp Duties in this year's Budget. In a recent High Court case the judge described the Medicine Stamp Acts and relative regulations as a mass of confused and obsolete verbiage that should be swept away. The Chancellor seems to have accepted this view and remains of the same opinion. That has long been my opinion, and it is an opinion widely held among pharmacists who have had experience of the Acts. In reality medicines required by sick people are not a proper subject for taxation. The Medicine Stamp Act is perhaps the only remaining example of an unsatisfactory kind of legislation in the time of George III, when the British Exchequer was seriously impoverished by the Napoleonic Wars and the American War of Independence. All other petty, vexatious and restrictive taxes were abolished under the fiscal reforms of W. E. Gladstone; but the Medicine Stamp Act, being a small affair, has been allowed to remain. It is an anachronism and should be abolished. But it has, however, operated as a restraining influence, through its ad valorem stamp duty and the reservation of the right of pharmacists to sell known and approved remedies; to abolish suddenly all restraints might be prejudicial to the public-health interests of the community, and widen the gap alluded to by Lord Horder. By a piece of skilful parliamentary tactics the council of the society and the allied interests are to be congratulated on persuading the Chancellor to continue the Medicine Stamp Duties for another year, but it will be well to keep in view the total abolition of Medicine Stamp Duty when the public-health aspect has been adequately secured. I now come to my constructive proposals.

THE RECOGNITION OF MEDICAMENTS

There is need for some central authority to recognise proper and reliable medicaments. A combination of the British Pharmacopœia and the United States Pharmacopœia might be the first stage in securing a Universal Pharmacopœia, and Dr. C. H. Hampshire has been called upon to frame such a world pharmacopœia. But this does not solve the whole difficulty in settling what are proper and reliable medicaments. New drugs and methods of treatment are constantly being introduced. It is necessary, therefore, to have some standing authority with power to act and make recognitions and regulations as occasion arises. I have in mind some such body as the Council on Pharmacy and Chemistry of the American Medical Association which publishes an approved list of new and non-official remedies, the purpose of which is to protect the medical profession and the public against fraud, undesirable secrecy and objectionable advertising in connexion with proprietary medicinal articles. To be effective any such representative body would need to have parliamentary sanction.

THE DEFINITION AND CONTROLLED SUPPLY OF MEDICAMENTS

The welter of names and the puzzling and confused nomenclature of medicaments calls loudly for some simplification and clarification. Some action seems necessary so that we should not have the same definite chemical substances put on the market by several manufacturers under different proprietary names. There should be some limit also to the putting up of mixtures of known substances under a proprietary name, so that the pharmacy shelves shall not be loaded with several proprietary preparations which are really combinations of well-known medicaments.

In a well-regulated state effective arrangements should be made for some reasonable control in the

supply of medicaments. Such control must be solely in the public interest and never for the benefit of a particular class. The principle is already in operation on a limited scale. About 90 years ago there was widespread public alarm at the numerous cases of poisoning by arsenic, which was sold indiscriminately by anyone. The Arsenic Act of 1851 was passed by which it was attempted to secure public safety by imposing regulations. About 10 years later public alarm was again created by a series of poisoning cases. After prolonged inquiry Parliament was persuaded that mere regulation was ineffective, and that the real protection of the public could only be secured by providing that poisonous substances should only be distributed to the public by the hands of a duly qualified pharmacist. This principle that the safety of the public is secured by limiting the distribution of such substances to properly trained and qualified persons is the basis of the Pharmacy Act, 1868. This principle is confirmed and extended under the Pharmacy and Poisons Act, 1933.

A WIDER APPLICATION OF PUBLIC CONTROL

I suggest that there is a strong case for a much wider application of such public control. It would be in the interest of the community as a whole that the dispensing and distribution of all medicaments should be entrusted by the state to those persons who have complied with the statutory requirements as dispensers. The mere fact that an article can only be obtained from a properly qualified person suggests to the purchaser caution in the use of the article, and the pharmacist would naturally, as he does in the case of powerful drugs, give any necessary guidance or information. The qualified pharmacist, though he knows little or nothing of pathology and would not presume to diagnose or prescribe, knows enough about the evidences of illnesses to be able to warn a purchaser in cases where the article he wants to purchase is distinctly contra-indicated. The matter is one requiring most thorough investigation and it is suggested that the Government should be approached by joint representatives from the medical and pharmaceutical professions requesting the appointment of a Royal Commission to investigate and report as a basis for legislation.

SCOTLAND

(FROM OUR OWN CORRESPONDENT)

THE ATTACK ON CANCER

THE Department of Health for Scotland has issued a circular on the application of the Cancer Act, 1939, to Scotland. As is now well known, the act places on local authorities the obligation to make suitable arrangements for the treatment of persons who are suffering from the disease. The arrangements proposed are to be submitted to the department by the end of next March, and before submitting them the authorities must consult with the governing bodies and medical and surgical staffs of voluntary hospitals providing services for the benefit of their areas and with representatives of the local practitioners. To avoid unnecessary expense and overlapping it is recommended that arrangements should be made for regional schemes. In this way the less populous districts, particularly in the Highlands, will be able to obtain satisfactory services that they might not otherwise be able to afford. No very large provision of new hospital beds by councils is anticipated by the department, particularly in those areas which are already served by large voluntary hospitals. Here it is thought that local authorities will wish to coöperate with the voluntary hospitals in helping to develop existing facilities, by contributions towards the capital cost, both in accommodation and equipment. In addition, payments will be made for the maintenance and treatment of patients. Further, councils are to include in their schemes arrangements for follow-up, supervision of patients between visits to treatment centres, record-keeping and the travelling expenses of patients. However, they are to recover from patients such proportion of the cost as can reasonably be afforded.

By instruction of the public it is hoped to convince cancer sufferers that early treatment holds considerable chance of cure and to overcome the dread that so often leads to dangerous delay.

REVASCULARISATION OF THE HEART

In a lecture lately given in Edinburgh Mr. L. F. O'Shaughnessy, of London, said he was satisfied that artificial adhesion between the omentum and the heart is compatible with normal function, and that the heart can be vascularised through the junction. He employs omental grafting in preference to the pectoral-muscle method of Beck, and he supplements the graft by the application of aleuronat paste to promote the formation of adhesions. In a few instances he has carried out cardiopneumonopexy as an alternative.

Surgical treatment of patients suffering from cardiac ischæmia should, in Mr. O'Shaughnessy's opinion, be undertaken only when the outlook under medical treatment is uncertain. A suitable patient might, for example, be a man in middle life who has had one attack of coronary thrombosis and has made a poor natural recovery. If pain and cardiac dysfunction still remain six months after the accident, vascularising operations may be employed to supplement natural recovery. Patients with disease round the coronary orifices but healthy coronary trees are suitable for operation both theoretically and practically. In the case of angina pectoris of effort, in which the degree of coronary-artery disease may be hard to estimate, the uncertain prognosis without grafting must be balanced against the risk of the operation, and the patient must make the final decision. It is probably undesirable to operate on patients over 65 years of age or on those with gross renal or cerebral arteriosclerosis. Moderate respiratory affection is not a contra-indication, since with modern anæsthetic methods and with the new and simpler extrapleural approach to the pericardium postoperative respiratory complications are uncommon.

Mr. O'Shaughnessy gave details of some of his failures as well as some of his successes. In one series of 20 cases of cardiac revascularisation 15 patients had angina. Of these, 5 died on the table, 1 died from uræmia three months later, and 1 died from heart-failure two months after operation. Of the survivors bedridden patients were able to become active and some were able to return to work. This ability to return to a normal life is to be considered the criterion of success.

THE LATE PROF. JOLLY

Scottish medical men will have learnt with regret of the death in Cape Town of Dr. W. A. Jolly, professor of physiology in that university. Prof. Jolly was an Edinburgh man and an Edinburgh graduate, and he worked in the physiology department in

Edinburgh before going to Cape Town in 1911. Among his many contributions to physiological knowledge will be recalled especially those concerned with electrophysiology, internal secretions, and cerebral function. In collaboration with W. T. Ritchie he published the first electrocardiograms of human auricular flutter, and gave the name to the condition. His alma mater conferred on him the honorary degree of LL.D. in 1926.

VIENNA

(FROM OUR OWN CORRESPONDENT)

MORE NON-ARYAN PRACTITIONERS TO PRACTISE

As was mentioned some months ago (*Lancet*, Nov. 19, 1938, p. 1191) most persons of Jewish nationality practising in the Austrian countries have lost their right to practise, except a limited number required for the remaining Jewish population. Lately however it has been found necessary to admit another batch of practitioners of this kind, since most of those admitted in October, 1938, have been forced to emigrate. Now again we are informed that a number of former general practitioners have been allowed to renew their professional activities. They are mostly men well above 60 years of age, for nearly all the younger ones are now out of the country trying to find a living somehow somewhere. While last year only those doctors who had seen active service in the world war were eligible for consideration, now hardly any differentiation is taking place. Even a number of female practitioners, including younger ones, have been allowed to practise. In the only Jewish hospital there is a constant fluctuation among the chiefs of departments. Nearly all the prominent men, also numerous trained assistants and nurses, have left the country already, so that those now in office are overworked and the quality is not what it was a year ago. As a result of the constant emigration, the bulk of the Jewish population of Vienna—about 100,000 persons now, 50 per cent. of what it used to be—are elderly people aged between 50 and 100. Children and young adults are rarely seen nowadays, and old and ailing paupers are all that is left for the newly admitted doctors to make a living from.

SHORTENING OF THE MEDICAL CURRICULUM

Some time ago the Minister of Education announced that, owing to difficulties of procuring the necessary number of young persons for the various academic professions, the medical curriculum would be altered, beginning with the new summer term of April, 1939. The duration of medical studies is to be shortened by about two years. The practical training of one year, which hitherto had to be taken after completing the curriculum of 11 semesters or 5½ years, will be now compressed into the studies, which will now last only 10 semesters or 5 years. The examinations, which hitherto took one extra term of 6 months, will also be interpolated "into the time taken up for studies, so that the students will gain two full years, in comparison with the requirements in force up till now." The new curriculum requires the student to take up a number of new studies hitherto unnecessary,—e.g., "racial knowledge," problems of population, and practical pharmaceutic botany. Furthermore, the student must take part for 6 weeks in agricultural or factory work, study radiological therapy, "natural therapeutics," occupational diseases, child welfare, accident and first-aid surgery, and industrial hygiene. The Minister expresses his expectation that the shortening of the curriculum and the increase in subjects to be studied will "induce the students to concentrate their efforts to reach the desired aim to the advantage of the national welfare." It remains to be seen whether 5 years' study is sufficient to maintain the high standard of the German medical practitioner, as recognised hitherto.

THE NEW "WIENER MEDIZINISCHE GESELLSCHAFT"

In the train of the new regime in Austria, the famous old "Gesellschaft der Aerzte" has been dissolved—after having celebrated its centenary in 1937. The greatest medical names of Germany—including a vast number of Jews—were among its members. Now in its stead a new "Wiener medizinische Gesellschaft" has been formed, designed to serve the needs of practitioners as well as scientific research, and only "Aryans" are admitted. Sections of this new society will take the place of all the former specialist groups, and among the new sections is one for military medicine. The president is a politician, who is also a doctor—the district governor of Vienna—and prominent representatives of the various specialties may be entrusted with the task of giving their opinion regarding any question of the nation's health. A lecture and demonstrations will be given at every meeting of the society. At the opening session the president, and also Professor Hamburger, explained that "the new principles adopted in the politics will also be governing the evolution of medical science in national-socialistic Germany." Freedom from preconception must be done away with, and a renascence of medical science based on national-socialistic ideology must take place.

RESTRICTIONS IN PRESCRIBING NARCOTICS

With the new year 1939, the pharmacopœia of the German Reich was introduced in Austria and with it the regulations about the prescribing of narcotic drugs. Every prescription of these drugs must show, besides the quantity, the name and address in full of the prescriber, the date, a specification of the application and use of the remedy, the full name and address of the patient, and the remark, "prescription entered or registered." The physician must keep a special book, in which he enters a full copy, with date, address and name of patient, of every prescription containing one or any of these narcotic drugs. He must keep a separate book for cocaine and another for morphine, and show it to the controlling officer of health if required. It is very interesting that these regulations do not apply to dionin, codeine and peronine and substitutes for cocaine. In parentheses, it should be stated that one narcotic drug must not be prescribed in combination with another narcotic drug, and that a 1 per cent. cocaine solution intended for use elsewhere than on the eye must be mixed with 1 per cent. atropine sulphate solution.

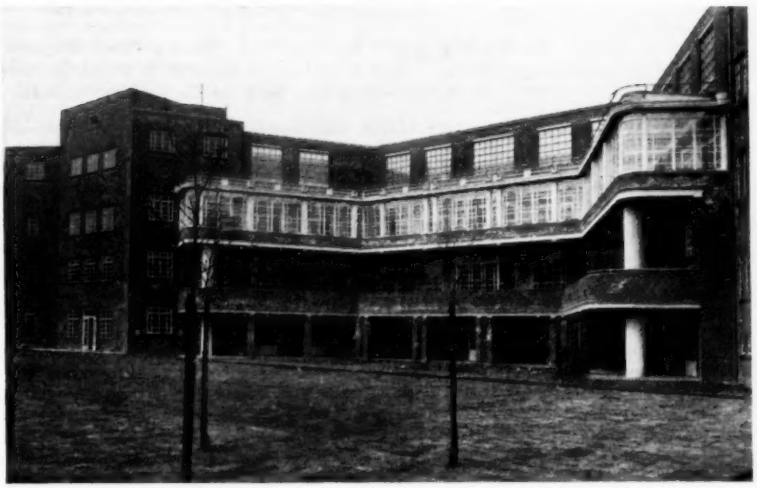
INDEX TO "THE LANCET," VOL. I, 1939

THE Index and Title-page to Vol. I, 1939, which was completed with the issue of June 24, is now in preparation. A copy will be sent gratis to subscribers on receipt of a postcard addressed to the Manager of THE LANCET, 7, Adam Street, Adelphi, W.C.2. Subscribers who have not already indicated their desire to receive Indexes regularly as published should do so now.

THE MAUDSLEY HOSPITAL

OPENING OF PRIVATE BLOCK AND CHILDREN'S WING

On July 14 the Earl of Athlone, in opening the new private patients' block and children's department at the Maudsley Hospital, Denmark Hill, said that his presence, as Chancellor of the University of London, marked another tie between the University and the London County Council. Thirty-one years ago Dr. Henry Maudsley gave the Council £30,000 to aid in building a hospital for mental illness, in which early, curable cases were to be treated, exact research was to be promoted and medical teaching in psychiatry was to be provided. The present building, which had cost the Council, to date, some £256,000, was the outcome of Dr. Maudsley's gift. It marked the completion of the last section of a large scheme of structural improvement which has been going on for six years.



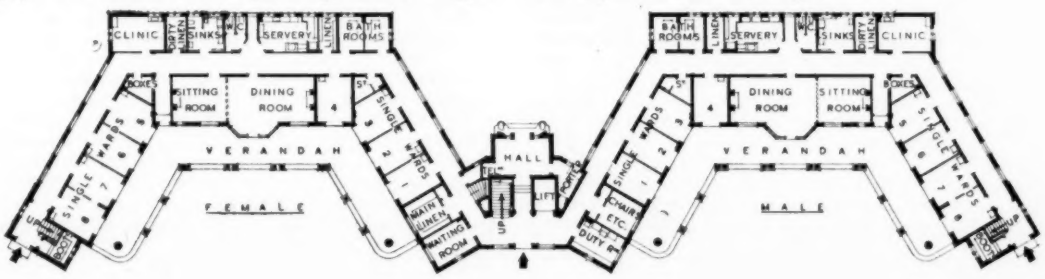
Private patients' block *City General Advertising Service*

DESCRIPTION OF EXTENSION

The small provision originally made at the Maudsley for treatment of private patients in single rooms was some time ago appropriated for other purposes, and the need for adequate private accommodation has become acute. The new private block—a building of two wings, fronting De Crespigny Park—is designed to meet the needs of persons who desire treatment, but do not find it congenial in open wards, and are prepared to pay a charge which will cover the cost of separate accommodation and care in single rooms. There are three floors, each taking patients of either sex. The structure and organisation are such that very careful classification will be possible, and no patient will have to be treated with others whose illness is of a different and possibly disturbing type. No patient will be admitted who does not come in voluntarily. Patients will not be received unless the outlook for recovery is good; there is no intention of receiving chronic patients or retaining those whose conduct would be likely to disturb others. The new building does not communicate with the original hospital buildings except by a subway and lifts; it encloses one side of an attractive garden, for the use of the private patients; on the other sides are the new children's block, the nurses' home, and buildings which were part of the first extension of the Maudsley, in which are rooms for occupational therapy and physical treatment, an operating-theatre, a gymnasium, an entertainment hall, a billiard-room, and a library. There is an attractive roof garden in the Italian style for those needing greater privacy than the downstairs garden will provide. The new building has a wing-shaped plan and gives most of the rooms a southern aspect, and there are open verandahs on the ground floor, open balconies on the first floor, and glazed solaria on the second floor.

The new children's block has been planned to meet the complete lack of adequate inpatient facilities for child psychiatry in Great Britain, and to provide separate accommodation for an outpatient clinic for children. It is intended, not for the backward or mentally defective child, but for the nervous and difficult child who needs individual attention. The outpatients' part of the new building is already fully at work; the residential accommodation is not yet occupied. Here also the roof-space (part of which is enclosed) has been used as an additional playground. The block contains, in addition to the wards, consulting and other medical service rooms, a mothers' waiting-room, a play-room and a room for social workers.

In the external treatment of all the new buildings multi-coloured facing bricks have been used, to ensure harmony with the existing hospital building. The entrances to the buildings have been used as focal points for the design, and, in the children's block, have been adorned with sculpture by Miss Julian Allan, A.R.B.S., who has also executed the two small figures to be seen in the roof garden. The cost of the present and previous extensions has been about £174,000. The main contractor for building work was W. H. Gaze of Kingston-on-Thames. Mr. E. P. Wheeler, until recently architect to the Council, was responsible for the design.



GRAINS AND SCRUPLES

Under this heading appear week by week the unfettered thoughts of doctors in various occupations. Each contributor is responsible for the section for a month; his name can be seen later in the half-yearly index

FROM A WOMAN PUBLIC-HEALTH OFFICER

IV

THIS week has brought from the far corners of the Empire friends old and new with good tidings of an increased interest in communal health and of many fine beginnings in preventive and hospital projects. But I do not wish to mitigate the picture I drew last week of the serious arrears to be overtaken in Colonial hygiene and the need for a *continuous* public effort at home and abroad. There is always a danger that "long-term planning" may be left suspended in mid-air for lack of funds if a call arises for expenditure in another direction—and all health campaigns worthy of the name must be planned and financed for years ahead. Not without reason one fears that Defence may be the enemy of Health unless the importance of the latter is fully appreciated.

* * *

One has tried hard to keep A.R.P. out of these notes, but it gets under the skin with its constant reminders of the war years. All of us have, I suppose, our private list of the Minor Horrors of War which irritated most. Mine included the depressing darkness of the streets . . . the shortage of small essentials like paper and wood . . . the nagging difficulty of getting small repairs carried out . . . and the curious way in which people were changed. Courteous and friendly shop-assistants and bus-conductors (whom I usually find as wonderful as visiting film-stars find our policemen) become insolent and unhelpful. We have all to be under Authority in war-time and one found that power descending on unaccustomed shoulders brought out unexpected dignity and competence in some but also gave the bully and sadist chances they never get in time of peace.

One minor nuisance, which at times assumed major importance, is worth recounting as it is more amenable than most of the above to prophylactic measures. I refer to the habit of untruthfulness and slandering which becomes epidemic during hostilities. The Russians in England and the Angels at Mons were harmless enough, but the War Babies legends were not so good for national prestige, and the reckless slanders on cabinet-ministers and on anyone high or low with German connexions were very bad indeed. Indescribable unhappiness was caused and several innocent persons who had made great sacrifices for their country were driven to suicide. Looking back one wonders whether the hate engendered by officially tolerated—or even fostered—atrocity stories may not have played some indirect part in producing the present unhappy situation. It did no-one any good to gloat over the notion of women with breasts hacked off or babies with hands cut off at the wrist. By an odd chance I was able to investigate several of these legends. The women with amputated breasts turned out to be a couple of ordinary cases of carcinoma mammæ seen by visitors to a ward where there were also Belgian refugee patients. One alleged victim of the Bolsheviks was a Polish refugee baby who, as his father anxiously explained, had (*a*) never seen a Bolshevik, and (*b*) been born like that! Another Belgian baby without a hand and forearm also turned out to be a case of congenital deformity. Not a single authenticated case of deliberate mutilation was ever traced, but certain newspapers went on repeating the stories till the end of the war. The Scots had a better way. Quite early in the war an old law against "leasing"—i.e., spreading lies to the public detriment—was revived and at least two people (one a town councillor) were prosecuted under it, to the great benefit of public morale. In England it is possible that the law against "creating a public mischief" might be utilised to the same useful purpose, if occasion again arose.

* * *

The war recollections most vivid just now are those associated with the evacuation of children. More power to the elbows of those engaged on this good work; but I think there is a tendency to exaggerate the effect of the whole business on the nervous system of the child. The Spanish experience confirms the impression formed by many of us who were in bombed areas in the last war, that children suffer much less than adults from alarm during raids. Their attitude is largely determined by that of the adults who have charge of them. One noted this in the first war refugees one saw—i.e., the horde of Belgians and French who poured into Calais before the rapid German advance at the end of October, 1914. I helped to feed the refugees in the canteens there and it was remarkable how quickly they regained normal calm and cheerfulness after a meal and a sleep. Later, in the East End of London the frequent raids put children under considerable strain but they stood up to it uncommonly well.

The morning of the first daylight raid (in June, 1917) found me examining children in a special school for mental defectives. (From that simple statement you may gauge the difference in the calls on the medical profession then and now.) The little M.D.'s were certainly a bit pale and jumpy but their sleep had been badly disturbed by almost nightly vigils in the overcrowded Underground stations which were then the only refuges. "Being dragged abaht like a sack o' pertaters" as one little boy indignantly described it. Suddenly the air-raid warning sounded and a little later came the bursting of shells. The children's attention began to wander even from the absorbing tests of Messrs. Binet and Simon. "Was it the 'Uns?" . . . It was. . . . At 11.50 a terrific bang shook the school and the children ran whimpering from their class-rooms into the hall. A tiresome little girl began to relate horrific anecdotes derived from a brother home on leave, and it was some minutes before the head-teacher could persuade them that the wicked "Tobes" (Taubes) were on their way home by now. "But how am I to get the children home" whispered the head; "they'll want their dinners and heaven knows when the all-clear will come." This would never do, so I slipped out through the deserted streets and bought an armful of buns. On the way out I called in at the school for physically defective children downstairs to see how the many cardiac cases (some very severe) were bearing up. "Very well, thank you!" The teachers had started community singing and an elderly attendant serving lunch had broken into song with a highly successful comic effect. At about 12.30 the all-clear sounded; the M.D. children cheerfully scampered off home with mouths full of bun. Then I realised how near

we had been to tragedy. In a neighbouring school a bomb had passed through the boys' department and killed 2 boys, through a girls' class-room and killed a girl, and then exploded in the babies' room and killed 15. Round the school gates stood a crowd of stricken people, mostly women with a few young men in khaki and elderly civilians. They neither moved nor spoke, but just waited patiently to know the extent of the calamity. Firemen from the docks were clearing the bodies from the wrecked infants' department and already a row of queer little dirty bundles lay under the playground shed. In the doorway I met one of the firemen with something in his arms, a thing like a charred rag doll with one torn limb protruding to show what it had been. Tears were pouring down his blackened face and the policeman who laid the bundle in the shed beside the others was weeping too. . . . Later we learnt that very few, if any, children had been merely injured. There had been no panic anywhere in the building. Incredible as it may seem the five-year-old children in the next room to the fatal babies' room did not leave their seats when the bomb burst. The teacher made them fold their hands and say a prayer and their confidence never wavered. . . . Moreover 50 stalwart infants presented themselves at 2 o'clock for afternoon school and were very disappointed that business was not as usual. One of the teachers suffered for a time from nervous shock but none of the children had any untoward after-effects that we ever heard of.

The next air-raid was mercifully less tragic. I had somehow been inveigled into judging at one of those detestable functions, a baby show. The raid took place half an hour before the show was due to begin, but hardly an entrant failed to appear and no mother mentioned the raid.

It was good to see from these and other episodes of what finely tempered metal the outwardly soft Londoner is forged. Perhaps that is the true purpose of nationalism—to make one realise of what great things people of one's own stock are capable, and to put heart into one's efforts to overcome imperfections.

* * *

Later I was privileged to serve with two of the women's uniformed services . . . and a new world opened up. The medical supervision of women living in camps and in aerodromes, the inspection of quarters, the technique of medical boarding and many administrative problems effectively stopped one from worrying who was going to win the war. In addition one had to wrestle with the Treasury, as St. Paul fought the wild beasts at Ephesus, to get reasonable treatment for oneself and one's staff. I was blessed above any woman's deserts in the chiefs and colleagues (male and female) which a kind fate provided both in the Q.M.A.A.C. and the R.A.F., and only one unsatisfied query remains from those crowded years. Why does the spectacle of a woman in uniform arouse such hostility in the breasts of many otherwise admirable human beings? Common sense might suggest that the replacement of men of fighting capacity is of urgent importance in war-time or the heads of combatant services and the Treasury would not sanction the scheme; that it is impossible to employ women in close association with men in camps and barracks without putting them into some sort of uniform; that they must be under some sort of formal discipline; and finally that any persons—men, women, or children—who have to be moved about in groups must be drilled and taught to march. It is all as simple and inevitable as that! Yet even the bland announcer of the B.B.C. in describing the Hyde Park review interrupted his pæan of praise to drop some childish and "catty" comments on the new Women's Auxiliary Territorial Service—whose members by the by make considerably more sacrifices than the women in more fashionable services. We shall indeed be foolish if we attempt to create rivalries or discords in the symphony of essential national service.

PARLIAMENTARY INTELLIGENCE

ON THE FLOOR OF THE HOUSE

By MEDICUS, M.P.

ANOTHER week of Peace passes by. Twelve thousand naval reservists are called up for July 31; thirty thousand militia begin their six-months training. British forces, including British aeroplanes, take part in the celebration of the French Revolution on July 14 in Paris. Britain and France agree to give Poland some eight and a half millions to help her maintain her army on a mobilisation footing. The Soviet-Mongol army defeats the Japanese-Manchukuo army. Negotiations begin in Tokyo about Tientsin outrages on British subjects. General Franco says Spain will remain neutral in a future war unless her vital interests are affected. Hong-Kong brings in conscription for British subjects. A Japanese crowd try to break down gates of British embassy in Tokyo. Foreigners are expelled from the Tyrol. And so on.

In these circumstances the ordinary threat and counter-threat of the parliamentary battle changes its character. For this Parliament of Great Britain knows how to coöperate, as Mr. Lees Smith observed in the short discussion on the Members' Fund Bill, when the occasion demands.

Civil Defence has now rambled through its last phases—on the existing bill at least—and the Lords' amendments have been considered. How satisfactory or unsatisfactory medical arrangements are to be will be found out by experience. But the bill does not so much lay down details of organisation as give powers and powers of a very sweeping character. And on the medical side they are powers which ought to be used to the full at once. The powers conferred on the Minister and on the local authorities are enough to make a good organisation and a workable organisation possible, but it will only be done by a general all-round coöperation of all concerned and with not too much red-tape about it.

* * *

On Friday last, after a discussion on overseas trade, the final stages of the Milk (No. 2) Bill were taken and the Minister announced that now there really would be milk available for expectant and nursing mothers and children under five and there was now no limit of money. The scheme last year—promised then with equal confidence by the then Minister—did not bring about the supply of milk for the mothers and young children because of the Ministry's failure to get agreement as to distribution. This time the Minister promised that the distribution should not be held up. The Milk Marketing Board agreed and he hoped and expected the distributors would agree too. But if they do not, then other

means of distribution will have to be found, although this was not stated in the debate. What was stated however by Sir Reginald Dorman-Smith, third Minister of Agriculture in the reign of Prime Minister Chamberlain, was that the Government could make no estimate of how long it would be before their methods would result in clearing out bovine tuberculosis and guaranteeing milk against other infections. On which it was proposed by the Opposition that the Government should introduce a one-clause bill giving power to local authorities to institute pasteurisation whenever or wherever the condition of the milk required it.

During this debate there were sometimes less than 40 members in the Chamber, so that the debate could at any time have been held up by the call for a "count" so as to bring it up to this minimum 40 which is the quorum. But it was not lack of interest in milk or in public health which caused this. For on one day of the Finance Bill debate there was an actual count. A day too on which Sir John Simon made a statement that the amount required for defence must be increased by 170 million pounds. Despite the fact that these defence preparations make such a military rattle as to drown the sound of ordinary debate a good deal of ordinary parliamentary business is going on all the time.

* * *

The health and housing committee of the Conservative Party met to consider the next step with regard to the medicine stamp duties. The fact that the Chancellor of the Exchequer was forced to abandon his attempt to repeal these duties this year by the consensus of opinion in the House lays a heavy responsibility on those who opposed this course. This Conservative committee, whose chairman is Sir Francis Fremantle and whose secretary is Captain G. S. Elliston, decided to ask the Chancellor and the Minister of Health jointly to receive a deputation who would submit suggestions for a revision of the stamp duties and for legislation to secure control of proprietary and other remedies in the interest of public health. The Government is also making moves in the same direction and the Labour Party have their own suggestions. It is to be hoped therefore that before the next budget a scheme will have been generally agreed upon. The scheme should, as the select committee proposed, be one to control not only medicines but also quasi-foods, quasi-beverages and instrumental appliances of one kind or another.

If Peace breaks out, we shall get a good many things done and, if not, DORA may be even more expeditious.

FROM THE PRESS GALLERY

Milk Bill

WHEN the Milk Industry (No. 2) Bill was considered in Committee in the House of Commons on July 12,

Dr. EDITH SUMMERSKILL said that the most undesirable feature of the bill was that the taxpayer was being asked to subsidise accredited and standard milk which was neither clean nor pure nor safe. Not one penny should be given to producers of this kind of milk. Forty per cent. of cows had tuberculosis, and it was these cows that were producing accredited and standard milk. Every year 2000 children died as the result of infection from milk which was called standard and accredited. Three-quarters of the cases of St. Vitus' dance, and three-fifths of the cases of infected bone in children were due to infected milk. Yet the Minister had the temerity to say that he intended to subsidise this milk, which was a danger to the community. Nobody should profit by producing such milk, and the Minister should reconsider the schedule.

The schedule was agreed to, and the Committee stage concluded.

CHEAP MILK FOR LOCAL AUTHORITIES

The bill came up for third reading on July 14, when the Minister of Agriculture indicated the provisions of the cheap milk scheme, and said the Milk Marketing Board was ready to submit a scheme to him at an early date.

The Government had reviewed the question of the loss likely to be incurred by the board in such a scheme, and had decided to make an Exchequer grant available for the period to the end of September, 1940, at a rate sufficient to ensure the board a return of 1*s.* 2*d.* a gallon on the average over the year. This figure had been reached on the basis of the experience of the Special Areas schemes. The rate would be reviewed in the light and experience gained during the year. The main features of the new scheme would be on the lines of the scheme in Scotland. Milk would be made available to local authorities for maternity and child welfare schemes at a reduced rate of 2*d.* a pint. The distributive allowance would not be more than 8*d.* a gallon. Local authorities would be able to authorise free milk, or milk at part payment on the full payment of 2*d.* a pint. The balance of the cost of milk supplied at less than 2*d.* would, as at present, fall on the local authority's funds. The Exchequer contribution was to enable them to sell at 2*d.* a pint. Each authority which wished to participate would prepare its proposals and submit them to the Minister of Health, who would coördinate them. There would be no limit to the amount of grant that could be made by the Treasury. The only limit would be the amount of milk they could get down the throats of mothers and children.—Dr. HADEN GUEST said that, as a convinced advocate of the value of milk, he had always been held back by the thought that milk was not an absolutely safe fluid for children to drink. Every doctor would be an enthusiastic supporter of a "drink more milk" campaign if the Minister introduced a bill for pasteurisation.—The bill was read the third time.

Docking and Nicking of Horses

In the House of Commons on July 12, Sir R. GLYN asked leave to introduce the Docking and Nicking (Prohibition) Bill, to prevent the docking and nicking of horses and the importation of docked and nicked horses. He said that a similar bill passed through all its stages in the House of Lords last session and certain amendments were inserted which the promoters of the present bill proposed to adopt. Under the existing law the operation of docking was illegal, unless performed by a veterinary surgeon, and the animal must at the time be completely anæsthetised. But the horse was undoubtedly subjected to torture, as a result of the operation which was unnecessary. The only excuse for docking, other than fashion, was that it took more time to keep the animal clean if it was not docked. That was giving way to laziness. If a horse's tail was docked and it was stung by flies the animal's nervous system was broken down and in time it became ill-tempered. Every country in Europe had now adopted a similar scheme. Under clause 2 of the bill, it was provided that a certificate of a veterinary surgeon should be obtained if the health of a horse's tail was affected. In other words, docking in future would be part and parcel of veterinary science for health reasons alone. It was provided that the act should come into operation on Jan. 1, 1940. In March at a conference of the veterinary services of Europe at Munich it was unanimously agreed that docking should be made illegal and, owing to the rapidity of totalitarian law making, Germany had already passed a law to this effect.

Leave was granted and the bill was brought in and read a first time.

Malnutrition

In the House of Lords on July 12, the BISHOP OF WINCHESTER called attention to malnutrition and asked H.M. Government if they proposed to take further steps to provide milk either at a reduced price or free to expectant and nursing mothers, children below school age, and children now at school. The figure of 92 per cent. admitted as fit to the Militia might suggest there was really no serious malnutrition in the country. But there was a somewhat startling contrast between these figures and the figures for entrance to the other armed forces. Not long ago 60 per cent. of applicants for the Army were rejected on physical grounds, and 35 per cent. of applicants for the Air Force had been rejected. Was this a result of the fitness campaign, or a change of standards?

The effect of malnutrition on infant mortality was shown in the following figures. In the well-to-do classes it was 30 infants per 1000 population; in the working classes 70; and among the unemployed 100 per 1000. Maternal mortality was closely connected with nutrition. In 1934 the rate in Wales was very serious, and reached in part of South Wales over 11 per 1000. Then free meals were given at the clinics, and the next year the rate had fallen to a little over 4 per 1000. The one difference apparently was that in the earlier year they had insufficient food, and in the next year had sufficient food.

The causes of malnutrition were two—partly ignorance, but much more largely low wages. There was a strong case for a policy of family allowances, but there were serious difficulties, including the opposition of the Labour Party and the trade unions.

A more direct way of dealing with malnutrition was by further provision for cheap and free milk. It was deplorable that the money set aside under the Milk Act last year for providing milk to expectant and nursing mothers and children under school age had not been used. He hoped the Government would make it plain on whom the blame rested. A large amount of milk went into the factories every week, at a much lower price than it cost to supply school-children with milk. We were not in the position of another country where the choice had to be between guns or butter. He was asking for guns, butter and milk. The health of the people was as necessary for national defence as the armaments that might have to be used.

Lord SNELL said that to feed hungry children was not only right in itself but was a good national investment. The child was the child not only of John Smith, but of John Bull. The trade union difficulties in regard to family allowances were serious ones, that some inquiry should be made to allay their fears.

Lord HANKEY said that as Secretary to the Committee of Imperial Defence he was profoundly shocked and humiliated by the fact that year after year more than 50 per cent. of the men offering for enlistment in the Army were rejected for physical and medical reasons. The late Sir Walter Morley Fletcher, then secretary to the Medical Research Council, assured him that the defects which caused these rejections were curable by proper nutrition, but that it took at least 15 years to translate research into action in such matters. Because of the satisfactory results in enlistment for the Militia they must not desist. THE LANCET pointed out that there was no specified minimum of height, weight or chest measurement for the Militia, and that some of the men with minor defects of feet and vision, who were placed grade 2 (a) of the Militia, would be rejected for the Regular Army; and that even for the Regular Army the standard was lowered in 1936, and since 1937 recruits had not been rejected on dental grounds.

The last report of the Medical Research Council stated:—

"Only by improving the general health and eliminating disease can it be hoped to reduce this present tendency of ever-increasing medical services, and the annual expenditure of between £200,000,000 and £300,000,000 which such services necessitate."

How could economy, which was never more important than today, and efficiency in national health, which was never more vital, be achieved? The answer was to be found in that enlightened report of the League of Nations Mixed Committee on Nutrition, 1937. The Medical Research Council had succeeded in condensing the main results into a very few words.

"A much greater consumption of milk and other dairy products, of eggs, of vegetables, including potatoes, of fruit, and of fat fish, at the expense of bread, biscuits, sugar and sweets, especially in early life is an urgent national requirement; it will not only improve the physique of the people but will reduce the amount of dental decay and greatly raise the standard of health. An increase in breast-feeding will still further reduce the high mortality-rate of infants from gastro-intestinal troubles and bronco-pneumonia. Whatever advances in medical knowledge may come, until these simple precepts are adopted there will still remain a great deal of preventable disease in this country."

The tragedy was that people did not know how to begin. Next to nothing was taught about nutrition in the schools. Now that the facts were established the time had come for a great national work of education and propaganda.

The task of public enlightenment should not be very difficult. The tremendous Governmental machinery on health questions was ready to hand. From the cradle to the grave the bulk of the people were accessible all the time to medical advice and instruction. The influence of the Government could be powerfully exerted through this machine if a real effort were made.

Viscount ASTOR said that the great need was for cheaper and safer milk. Up to date the medical profession had not been able to act with complete vigour because it could not be guaranteed that the milk was reasonably safe. It was necessary for the Government to see that the milk-supply was safer, and he regretted that proposals towards this end in the Milk Bill introduced last December had been dropped from the present bill. Interim reports on the experiment supervised by the Advisory Committee to the Milk Board, of which he was chairman, to ascertain the effects of different milk rations on children, had so far brought out that in growth and weight children who received a single ration of milk improved more than those who got none; that children who got a double ration improved more still; and that there was substantially no difference between giving children raw milk and pasteurised milk. This was very important owing to the prejudice in some minds against pasteurisation. Farmers were short-sighted if they opposed the pasteurisation of milk which did not come from tubercle-free cows. It was to their interest to get the backing of the medical profession for a "drink more milk" campaign, but they would only get that backing if the milk-supply was rendered safer.

Viscount DAWSON OF PENN said the Militia represented all classes, and they would expect to find better average health among them than among ordinary applicant for the Army, partly because Militiamen were sufficiently young to have profited from the improved knowledge of feeding, and partly because ordinary entrants for the Army contained a larger proportion of those down on their luck and not under parental care. Above everything else there must be a sure supply of fundamental and protective foods, and a supply of fresh food such as milk, vegetables, eggs and the like. Such forms of food were of greater importance to us to grow in this country than corn and cereals, which could be stored, but dairy produce and green vegetables must be freshly produced.

Was it unfair to say that government after government had been like unto Pharaoh in the obstinacy in regard to the pasteurisation of milk? Outbreaks

of diphtheria and scarlet fever had been proved over and over again to be due to milk.

Earl DE LA WARR, president of the Board of Education, said that the value of reports of school medical examinations was to some extent vitiated as there was not as yet any objective or exact method of measuring nutrition or malnutrition. Based on the experimental schemes started in 1936–37 for the supply of milk to mothers and children under five in the Special Areas (from which up to date just over 20,000 persons had benefited, consuming something over a million gallons of milk), it had been the Government's policy since 1937 to secure a reduction of price for milk to local authorities for supplying mothers and children under five. The Government estimated that if they were able to put this reduction in price into operation it would mean an increase in the consumption of milk for this purpose of from something over 3,000,000 gallons a year to something over 20,000,000 gallons a year. The latest figures showed that in England and Wales there were 2,500,000 children paying for their milk in schools, and a further 500,000 were receiving it free.

Replying to a point raised by the Earl of Cork and Orrery, who had said that the operations of the Milk Marketing Board had cost the voluntary hospitals a quarter of a million, and that children could get milk at school but if they went into hospital they did not, Earl DE LA WARR said that they had lately been able to make arrangements for a sick child to call at school for his bottle of milk, or in some cases to arrange for it to be taken to the child's home. He would inquire into the point about hospitals, which was a new one.

Last year over 22,000,000 free meals other than milk were provided—more than double the number provided ten years ago. School canteens were springing up, particularly in the rural areas, for children who came from a distance, and local authorities were making increased use of their powers to provide free solid meals.

The House to House Collections Bill (formerly the Charitable Collections Regulation Bill) was read the third time, and passed.

QUESTION TIME

JULY 13–19

Chairmanship of Dental Board

Mr. WEDGWOOD asked the Paymaster-General, as representing the Lord President of the Council, whether he was now in a position to state whom he had appointed as the chairman of the Dental Board of the United Kingdom.—Earl WINTERTON replied: The first chairman of the Dental Board, the late Sir Francis Acland, who died on June 8 last, was appointed in 1921 and reappointed from time to time. The period for which he was last appointed would have expired on July 28, 1939, and the provisions of the Dentists Acts preclude the actual appointment of a successor until that date. The Lord President, however, has invited Mr. E. L. Sheridan, F.R.C.S.I., L.D.S.I., professor of dental surgery in the National University of Ireland, to accept appointment and Mr. Sheridan has accepted the invitation.

Mr. WEDGWOOD: Is the noble lord aware that there is great resentment among British dentists, in view of the Irish hostility towards Great Britain, at the appointment as chairman of the British Dental Board of a Sinn Fein Irish catholic living in Dublin?

Sir FRANCIS FREMANTLE asked whether, inasmuch as the Irish Free State had its own dental board, he would reconsider his decision and nominate a British practitioner for the vacant chairmanship of the Dental Board of the United Kingdom.—Earl WINTERTON replied: No, Sir. The existence of a dental board in Eire does not seem to the Lord President to be relevant to the question of the appointment of the chairman of the Dental Board of the United Kingdom, one of the members of which, as I would remind my hon. friend, must under the provisions of the Dentists Acts be elected by qualified dentists practising in Ireland.

Captain ELLISTON asked whether he would reconsider his intention to appoint a practitioner in the Irish Free State as chairman of the Dental Board of the United Kingdom, in view of the fact that of 14,722 dentists on the British register only 160 practised in the Irish Free State.—Earl WINTERTON replied: No, Sir. As my hon. friend is aware, Mr. E. L. Sheridan has accepted the Lord President's invitation to succeed the late Sir Francis Acland as chairman of the Dental Board of the United Kingdom. Mr. Sheridan, who has been a member of the board for many years, was last elected by qualified dentists practising in Ireland, which expression under the Dentists Acts mean the whole of Ireland, inclusive of Northern Ireland. At the date of Mr. Sheridan's election the number of qualified dentists on the United Kingdom register practising in Eire and in Northern Ireland were approximately 161 and 285 respectively. I may add that Mr. Sheridan's election was unopposed.

Income-tax and Sickness Benefit

Mr. GREENWOOD asked the Chancellor of the Exchequer whether he proposed to take any action with respect to the decision of the Special Commissioners for Income Tax that sickness and disablement benefit from approved and friendly societies, trade-unions and other bodies are liable to income-tax.—Sir JOHN SIMON: I saw certain comments on the matter which were communicated to the press this morning, but I am informed that they are materially inaccurate. The decision referred to involves no new point of principle at all. Nor is the practice changed. Income-tax, where due in such cases, is not and will not be deducted at the source. The actual case was that of a permanently disabled individual with a not inconsiderable private income which is supplemented by substantial payments derived from an insurance company and a friendly society. His total income is much above the exemption limit and the payments, which are treated by the Special Commissioners as in the nature of annuities, have continued for some years. It is not the practice to charge benefits for periods of less than a year, no recipient with an income under exemption limits can be affected, and no new field of taxation is opened by the decision. I may add that benefits under the National Health Insurance acts and unemployment insurance benefits are not treated as liable to income-tax, nor will they be.

In reply to a number of further questions, Sir J. SIMON said: There has been no general ruling in regard to income from trade-unions or approved societies. This was a particular case decided by the Special Commissioners as a particular case. The position is exactly the same as in 1925 or any later year.

Consultant Ophthalmologists for the Militia

Mr. RITSON asked the Minister of Labour if he would consider appointing an expert oculist on to the panel of medical boards who were examining recruits for the Militia.—Mr. ERNEST BROWN replied: Each medical board has been given the names of one or more qualified ophthalmologists to whom they can refer men for examination where they consider this to be necessary.

In reply to a further question Mr. BROWN said the number of references was not sufficient to justify a full-time officer being appointed.

Civil Defence: Surgery Courses

Miss RATHBONE asked the Minister of Health whether he would consider arranging through the appropriate authorities for courses in first-aid war-time surgery to be provided for those medical practitioners whose practice did not normally include such surgical experience.—Mr. ELLIOT replied: The eminent medical men who are acting as group officers in the various areas, most of whom have had much war-time experience, are I understand selecting doctors with adequate surgical experience for duty in the casualty receiving hospitals. I doubt whether the step suggested by the hon. member would be of use.

Miss RATHBONE: Will the right hon. gentleman consider the fact that in war-time practically all the doctors will be busily engaged giving first-aid treatment in bombing areas, and is he aware that the proposal outlined in the question has behind it a good many medical prac-

titioners who feel that they had had so little surgical experience that they would be at a disadvantage in time of war even in giving first-aid treatment ?—Mr. ELLIOT: If the hon. lady will bring forward any information in her possession I will take it into account.

Mustard-gas Blindness

Mr. ROSTRON DUCKWORTH asked the Minister of Pensions the number of new cases of blindness by mustard-gas which had been accepted by his department during the last three years; and the number of claims in respect of such disability which had been rejected.—Sir W. WOMERSLEY replied: Seventy-eight cases of impaired vision, including blindness, due to injury from mustard-gas have been accepted (for pension) during the last three years; this figure includes 57 cases in which there has been a previous award for another disability or other effects of gas. No claims which have been established as resulting from mustard gas have been rejected.

Nursing Committee's Report

Mr. AMMON asked the Minister of Health whether he could now indicate the action it was proposed to take with respect to the recommendations contained in the report of the Interdepartmental Committee on the Nursing Services, including the question of superannuation and the transfer of superannuation rights.—Mr. ELLIOT replied: Yes, Sir. With regard to training and education I have already approved amendments by the General Nursing Council of the rules governing the preliminary examination, in accordance with the committee's recommendations. These amendments have taken effect, and the President of the Board of Education will in a few days issue a circular on the question of training courses. With regard to general conditions of service, I am shortly issuing a circular to local authorities on various recommendations of the committee. The question of superannuation, with some other questions, is still under review.

Free Meals for Welsh Children

Mr. EDWARD WILLIAMS asked the Parliamentary Secretary to the Board of Education the number of children in receipt of free meals and free milk in elementary and secondary schools in the county and county borough areas of Wales and the proportion of the full complement on the registers.—Mr. KENNETH LINDSAY replied: In May, 1939, 5582 children in public elementary schools in Wales and Monmouthshire, including county and county borough areas and boroughs and urban districts which are local education authorities for elementary education, received free solid meals, 3248 free meals and milk and 60,416 free milk only; 3·1 per cent. of the children on the registers received free meals and 19 per cent. free milk. In the secondary schools free meals and milk are usually given by means of maintenance allowances, but no information is available as to the number of children who receive them in this way.

Local Authorities and Hospitals

Mr. SILKIN asked the Minister of Health how many hospitals formerly maintained and managed by poor-law authorities had been appropriated as public-health institutions under the powers contained in the Local Government Act, 1929; and how many of such hospitals were under the control of public-assistance committees.—Mr. ELLIOT replied: Out of a total of 79 hospitals in England and Wales, recognised as poor-law hospitals under the terms of the Public Assistance Order, 1930, 61 have been appropriated to public-health purposes, and 18 remain under the control of the public-assistance committees.

Silicosis in South Wales

Mr. JAMES GRIFFITHS asked the Home Secretary the number of applications received and the number of certificates granted for total and partial disablement, and certificates that death was due to silicosis among coalminers in the United Kingdom in the 18 months ended to the last convenient date, under the Various Industries (Silicosis) Schemes; and if he would give separate figures for the anthracite coalfield and the rest of the South Wales coalfield; and if he would also give particulars of the grade of employments, and the number of certificates in each grade, respectively.—Mr. PEAKE, under-secretary, Home Office, replied: Applications to the medical board for certificates under the Various Industries (Silicosis) Schemes from coalminers were as follows:—

—	Total	South Wales, excluding anthracite mines	Anthracite mines
Disablement or suspension:			
Applications for certificates ..	1306	521	470
Certificates granted	678	275	324
Certificates refused	628	246	146
Deaths:			
Applications for certificates ..	173	89	48
Certified as due to the disease	109	53	28
Certificates refused	64	36	20

The particulars asked for in the last part of the question are not available.

British-made X-ray Apparatus

Mr. HOPKIN asked the Minister of Health if he was aware that advice was being given to hospitals purchasing deep therapy X-ray apparatus that foreign firms could produce better equipment than British firms, and that as a result of this advice several installations of foreign apparatus had been made; and if he would consider issuing a circular to all hospitals recommending them to make use to the utmost extent of the British-made X-ray equipment.—Mr. ELLIOT replied: I am not aware that any such advice as is referred to in the first part of the question is being given. As regards the second part, my department has issued a circular to local authorities recommending them wherever practicable to make use of goods and materials of home production, but I have no authority to issue a similar circular to voluntary hospitals.

PLASTIC SURGERY CONGRESS.—The fourth international cŏngress organised by the Société Européenne de Chirurgie Structive will be held in Paris from Oct. 5 to 7. The hon. president of the congress is Prof. P. Sebileau, and the president is Dr. L. Dufourmentel. The main subjects for discussion will be the treatment of deformities resulting from scar retraction of the eyelid, and the treatment of deformities of the jaw. Further information may be had from the secretaries of the congress, 9 rue de Turin, Paris VIII.

EXTENSIONS AT HARROGATE SPA.—On July 10 the Lord Mayor of London opened the extension to the Royal Baths at Harrogate. The new building which has been built at a cost of just over £80,000 is capable of providing one thousand treatments a day, all of which use, in one form or another, the natural mineral waters of Harrogate. The new wing is connected to the existing buildings by promenades surrounding a central fountain court. In place of the old glass-covered winter gardens a new lounge has been erected which forms a centre for the whole of the bathing establishment. Treatments have been grouped for ease of administration and covered corridors will provide for internal communication between the various departments. The entrance and corridors will be free from steps to enable bath-chair patients to have easy access to all parts. In the new wing the ground floor contains sulphur baths and the first floor the intestinal lavage department, each with its own dressing-rooms, cooling-rooms and rest-rooms. Elevated tanks containing the various mineral waters are arranged in the water-tower, which has been placed in a central position for distribution, and the hot and cold sulphur, alkaline and plain waters are gravitated to the various bathrooms and appliances.

Under a new scheme it will be possible for patients to receive medical attention and all baths, waters and treatments required for a complete cure are at fixed inclusive charges of 5 guineas for two weeks or 7 guineas for three weeks. Hotels in the town are coöperating by quoting reduced fees for patients coming to Harrogate under this new scheme. It will thus be possible from the outset for patients to ascertain the exact cost of a cure.

OBITUARY

JOHN MELLANBY

M.D. CAMB., F.R.S.

John Mellanby died on July 15. He was a great physiologist and a great teacher. He was respected by all who knew his work, and loved by his colleagues and assistants.

The family was a brilliant one. His elder brother is Prof. Alexander Mellanby of Glasgow, while his younger brother is Sir Edward Mellanby. The three brothers went to Barnard Castle School, in their native county. At Cambridge John took a first in both parts of the natural sciences tripos, and then became physiologist on the staff of the Burroughs Wellcome laboratories at Battersea, where he joined a group which included Sir Henry Dale and George Barger. After 3 years in this laboratory, he entered Manchester University to complete his clinical studies. His Cambridge M.D. thesis gained for him the Raymond Horton Smith prize, and he spent the next 2 years in the Cambridge physiology laboratory as G. H. Lewes student. Then, in 1909, when only 31, he succeeded J. B. Leathes as head of the physiology department at St. Thomas's. Here he remained for 25 years, becoming professor in 1920. He was elected an F.R.S. in 1929, and was a councillor of the Royal Society at his death. In 1936 he went to Oxford as Waynflete professor of physiology. He was a fellow of Magdalen, a member of the Medical Research Council and a former editor of *Physiological Abstracts*.

Mellanby always said that work on a new aspect of physiology was a relief and a stimulus to thought. In consequence his name is linked with researches over a very wide field. But the connecting thread throughout was always an objective biochemical examination of physiological phenomena. At Cambridge he had been a pupil of Langley, Hardy and Hopkins, and the influence of Hopkins was responsible for his interest in biochemistry. His first papers, now regarded as classics, were concerned with globulins and the physical properties of serum. In these Hardy's pioneer work in colloidal chemistry is traceable, and throughout his life Mellanby always emphasised the fact that the body was a series of colloidal solutions, whose properties continually influenced the functions of the organs and tissues.

His early work on protein was followed by a systematic examination, with his colleague V. J. Woolley, of the enzymes of the pancreas. The study of lipase led him on to demonstrate the particulate absorption of unhydrolysed fat through the agency of bile salts. He disentangled the parts played by the vagus and secretin in pancreatic secretion. He showed that prosecretin, said to be activated by hydrochloric acid, was a myth, and that secretin itself was present in the duodenal mucosa, thus explaining why achlorhydrics had an adequate pancreatic flow. He purified secretin and showed it to be a proteose, and drew attention to the rôle of bile salts both in secretin absorption and in biliary secretion. The great range of his researches covered also the action of the bladder, the relation of the nervous system to the blood-sugar and glycosuria, the nature of enzyme action, and anoxia, CO_2-carriage and CO poisoning. The pathologist owes him a method of concentrating diphtheria toxin and antitoxin and a way of stabilising colloidal gold for the Lange test. Almost his last publication was on splenomegaly which he produced when studying the function of blood-urease.

But running in and out through this diversity of researches was his work on blood-clotting. He showed that prothrombase was not related to platelets, but was a protein in plasma forming a complex with fibrinogen. He investigated the actions of many snake venoms, showing the extreme coagulant effect of viper venom. After the war a much fuller recognition was given to his work, when he isolated and described the properties of pure prothrombase and thrombase, showing prothrombase to be a very labile water-soluble protein. In 1935 he showed that calcium ions were not fundamental for fibrinogen clotting but were made necessary by reason of the peculiarities of the plasma proteins.

It will probably be some years before a true assessment of the real value of his scientific work will be made. Appreciation of his high place as an investigator has grown slowly but certainly, and there is good reason to believe that even now his great capability is not rated at its true value. He only wrote when he had some outstanding discovery to report. He considered himself a general physiologist and was prepared to investigate any problem that interested him. It is doubtful whether any other living physiologist, working so often with a lone hand, has contributed so many facts to the science. His methods were always simple. His experiments were always capable of being repeated by others. And repetition has always shown how wise were his conclusions.

Mellanby came from the valley of the Tees. He was apt to maintain that his name indicated viking origin. Be that as it may, he had a rugged austerity which made him difficult to approach. But beneath this, one found a man of extreme shrewdness who had no use for humbug, a first-rate judge of character and a staunch fighter for the rights of the individual. His probity made him a loyal friend and, if he was sometimes brusque in his comments, his candour was justified. But over all there was a gift of rapier-like wit which never pained and made his friendship a joy. This combination of honesty, candour, and humour made John, as he was called by all his students, a power in the land when discipline was called for and routine methods had failed. His lectures were a joy to listen to. Every year subjects were approached from a new angle. John never repeated himself. His Socratic questions, addressed particularly to students in what he liked to call the stalls or the gallery, would often bring down the house. He loved figures and would force the ignorant to convert pints of beer into litres of urine. He spoke sitting down and would " doodle " with chalk drawing

crosses inside circles inside squares which tradition said was a test for alcoholic intoxication in one of his earlier researches. He was a great examiner and his original questions were designed to pick out of themselves the good and the exceptional candidate. He was never afraid to give a high mark when he thought it deserved, sometimes to the surprise of the candidate.

Prof. A. St. G. Huggett, who contributed many of the details for this note, recalls the joy it was to meet Mellanby and his wife and daughter Joan in their home at Englefield Green. Mellanby got immense pleasure out of achievement of any kind, especially if this was associated with beauty. His knowledge of and skill in gardening was very great. Any free time in London often brought him to Christies, where he would purchase some beautiful but inexpensive example of craftsmanship and bear it home rejoicing to show to his family and intimate friends. He bought articles because they pleased him and then proceeded to study the subject they represented. His knowledge of antiques thereby became great. He was, however, no showman, and his vivid interest in and knowledge of life was only appreciated by those who were closely associated with him.

LETTERS TO THE EDITOR

OPHTHALMIC BENEFIT

SIR,—May I draw attention to the new developments that are taking place with regard to the administration of ophthalmic benefit under the National Health Insurance scheme. Some years ago the British Medical Association entered into arrangements with the Association of Dispensing Opticians to form the National Ophthalmic Treatment Board (N.O.T.B.). The B.M.A.'s reason for this step was to encourage insured people and others of similar income-status to consult a medical practitioner rather than a sight-testing optician. To this end very extensive propaganda and advertisement have been undertaken by the board, and the number of insured people availing themselves of the facilities offered is now so large that the N.O.T.B. look forward with confidence to the absorption of practically all ophthalmic work of this type. Hitherto any practitioner who could show "reasonable ophthalmic skill" has been eligible on application to have his name included in the list of doctors operating the medical aspect of the scheme, and no body has had power to exclude any suitably qualified medical practitioner. After a considerable agitation some twelve months ago the Ophthalmic Group Committee of the B.M.A. was made representative, but the medical representation on the N.O.T.B. remains largely executive, being directly elected by the group committee.

It is important to recognise that the commercial side of the N.O.T.B. has received criticism. It is not clear to everyone that the charges for spectacles under the scheme are equitable to the public in all the circumstances, and some have thought it undesirable that patients should be directed to ask a tradesman to arrange for them to see a doctor, especially as the tradesman is subsequently to sell them goods ordered by the doctor selected. Others have found derogatory the keeping of ophthalmic appointments made by an optician in premises owned by that optician, and some doubt has existed both among medical practitioners and dispensing opticians as to whether such patients really belong to the dispensing optician or to the doctor, since the dispensing optician pays for the advertisement and provides the whole of the money for the N.O.T.B. organisation, by a levy on sales under the scheme.

The N.O.T.B. is now to be made into a limited company, to protect its title, but advantage is being taken of this opportunity to alter the status of practitioners coöperating under the scheme. We are invited to sign "form A," which is "an application for appointment for the conduct of ophthalmic examination and treatment on behalf of the N.O.T.B. Ltd." It is possible that the words "for appointment" may be changed to "to have my name placed on the list of practitioners approved for." The operative clause here is "on behalf of." The wording recognises the proprietary right of the N.O.T.B. in the goodwill involved. The ophthalmologist thus asks to be permitted to see patients entitled to benefit under national health insurance "on behalf of" a limited company who, by advertisement and propaganda, have persuaded patients to place their ophthalmic destiny in their hands.

Not content with forcing an existing practitioner, whose livelihood depends to a greater or less extent on the N.O.T.B., to seek an appointment, the form requires him "to observe the conditions, rules, and regulations laid down by the B.M.A. from time to time." Insurance practice in ophthalmology is for the future to be dependent on our submission to conditions imposed by the B.M.A. Further, this section authorises the Ophthalmic Group Committee of the B.M.A. "after due inquiry to take such action as it may consider appropriate in the circumstances." Such disciplinary action might well include expulsion. There is no provision for appeal. The next clause reads, "I agree to the condition that my appointment is terminable by one month's notice in writing on either side."

The final arbiter of our professional destiny is thus to be a limited company, whose board consists one-half of opticians, and which may terminate the appointments of its oculists just as it dismisses its errand-boys—on one month's notice—such notice being of the same significance to an oculist as would be a similar termination of his panel practice to any general practitioner. It is essential to the scheme that the names of all qualified ophthalmic practitioners must be submitted to every patient applying to be seen under the scheme. The last paragraph reads, "I agree that failure on my part faithfully to carry out the above provisions or undertakings gives to the Ophthalmic Group Committee of the B.M.A. full power to direct the N.O.T.B. to erase my name from the N.O.T.B. Ltd. ophthalmic list." So that not only may his livelihood be taken away, but he may be for ever excluded from participation in the huge advertisement given to his more fortunate, or more amenable, colleagues. A resolution proposing to include in form A a recognition that the case-records of patients seen are the property of the doctor, not of the optician, was passed at the general meeting of the ophthalmic group of the B.M.A. on Friday last.

The N.O.T.B. found its inception in the desire to provide a national ophthalmic service for the masses. Due credit must be given to the B.M.A. for the arduous pioneer work. But the position at present is that a vast commercial enterprise has developed with

all the machinery of expensive advertisement, and this organisation is now in the position of a disciplinary body over ophthalmologists, whom indeed it is to employ in future. It is true that this commercial organisation is not to act without professional restraint, but it is questionable whether it serves a national or professional advantage to have a commercial organisation exercising such powers. It must still be the object of ophthalmologists to organise a national eye service, but if the financial arrangements necessary for such a service cannot be developed by the profession, it seems to most of us that it would be more reasonable to have some public body in charge of such arrangements. The introduction of commercial interests into any national scheme of this kind would be regrettable at any time. When such a commercial organisation now seeks to exercise disciplinary action, the time has come to review the whole basis upon which a national ophthalmic service can function best.

I am, Sir, yours faithfully,

R. LINDSAY REA,
President, Association of British Ophthalmologists.

Harley Street, W.1, July 17.

ABDOMINAL RESECTION FOR RECTAL CANCER

SIR,—Possibly comments aroused by Mr. E. G. Muir's article in your issue of May 13 will have come and gone by the time this letter reaches you, but I should like to welcome his paper as a sign of growing attention to the more "selective" procedures (to use a thoracoplastic analogy) in rectal cancer.

The subject was discussed at the tenth Australian and New Zealand Cancer Conference held in Wellington last February, and in the course of a paper on conservative surgery in cancer of the rectum I referred to the pathological research of Westhues, about 1930, the recent St. Mark's survey, and the clinical applications of these matters by such surgeons as Gehrels, Goetze, and Devine. My own small personal series of 14 operable cases of rectal cancer fell into the following groups:—

(*a*) In 5 cases conservative resection was impossible because of the low situation of the growth.

(*b*) In 2 cases in which the anus was sacrificed, it might have been possible to save it in the light of more recent views.

(*c*) In 2 cases Hartmann's abdominal resection was carried out with permanent colostomy, but in cases similar to these occurring now I would attempt conservation of sphincter.

(*d*) In 4 cases conservative resection (2 sacral and 2 abdominal) was carried out.

(*e*) In 1 case, very suitable for abdominal conservative resection, the procedure was not completed.

Thus half of the 14 cases had, or were suitable for, conservative resection. Similarly, in reviewing 26 radical combined operations at Auckland Hospital, I judged that 17 (or 65 per cent.) were suitable, on anatomical grounds, for saving of sphincter. Continental surgeons give high percentages of conservative resections—e.g., Hochenegg 25, Kuettner 42, Finsterer 70 (quoted by Gehrels).

Mr. Muir does well, therefore, to call attention to possibilities other than the standard perineal, perineo-abdominal, and abdominoperineal procedures. The basis for the conservative operations, with saving of sphincter, lies in the proven rarity of downward and lateral metastases, and its success has been made more general by improvements in technique, conspicuous amongst which I would place Devine's double-barrelled colostomy, and total "defunctioning" and disinfecting of the distal colon segment bearing the growth.

I am, Sir, yours faithfully,

Auckland, N.Z., June 29. DOUGLAS ROBB

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THE MANTOUX TEST

SIR,—In recording the results of Mantoux tests there is at present to my knowledge no concise way of doing so to show both dose and reaction. It seems important that when these tests are repeated at intervals—e.g., contacts, nurses in institutions—and perhaps by different medical officers, changes in sensitivity should be readily noted. Hence the need for recording not simply a negative or positive reaction but both the dose and the reaction to it. To make this recording concise I suggest the following:—

A. Record doses as follows:

1 mg. as 1	0·01 mg. as 3	1 mg. = 1 is the important figure from which to derive the others.
0·1 mg. as 2	0·001 mg. as 4	

B. Record reactions on the lines of the Aronson scale:
Aronson 0 and ? (reaction less than 5 mm.) as 0.
Aronson + (reaction between 5 and 10 mm.) as 1.
Aronson ++ (reaction between 10 and 20 mm.) as 2.
Aronson +++ (reaction over 20 mm.) as 3.
Aronson ++++ (central necrosis) as 4.

C. Record results of the Mantoux test as dose × reaction—e.g., 0·01 mg. O.T. giving a ++ reaction would be shown as 3 × 2.

No virtue is claimed for the actual mathematical product, but it is suggested that the expression of dose and reaction as shown above has the merits of simplicity for the purposes of recording, and would show at a glance any significant change in reaction.

I am, Sir, yours faithfully,

R. S. R. FRANCIS.

Mecklenburgh Square, London, W.C.1, July 11.

LEUCO-ERYTHROBLASTIC ANÆMIA

SIR,—Hæmatologists have often been accused of complicating the terminology of their subject to such an extent as to make their specialised literature almost incomprehensible to the general physician and even to the majority of laboratory workers. Interest in the nomenclature of blood-cells has waned very considerably since the death of Pappenheim, who did so much to differentiate between cells on the basis of minute tinctorial peculiarities; but, even at its worst, such specialised researches were nothing more than the hobby of some hæmatological laboratory workers. More recently the interest has shifted from the classification of cells to the classification of "blood diseases," which, instead of being regarded as hæmopoietic reactions—as in most cases they are—have been hypostatised into maladies sui generis.

This unfortunate tendency is exemplified in Dr. Lucey's report in your issue of July 8; for he suggests that "some cases of so-called acquired acholuric jaundice may really be unrecognised cases of leuco-erythroblastic anæmia," and he begs that we take care to exclude "the latter *disease* by a thorough search of the body for a primary malignant growth and by radiography of the bones for secondary deposits . . ." (my italics). Surely what is meant is that the discovery of a leuco-erythroblastic blood-

picture is to be regarded as an indication for careful search for one of the known causes of such a change; and one of the known causes is the presence of metastases in the bone-marrow. There is no basis on which it can be claimed that leuco-erythroblastic anæmia is a "disease"; any more than it could be contended that the hypochromic anæmia that develops in cases of gastric carcinoma is a "disease." The blood is not a tissue but a mixed secretion, derived from various organs, which themselves may be the seat of disease. Changes in the blood, like changes in the urine, are symptomatic and nothing more.

My protest against the elevation of leuco-erythroblastic anæmia to the status of a disease is, I think, important, because Lucey's article suggests that the absence of secondary deposits in the bones would make him revise his diagnosis of leuco-erythroblastic anæmia. The position is surely that leuco-erythroblastosis is nothing more than the name applied to a special sort of blood-picture. The cause may be obscure, but, even if it is not detected, the blood-picture still deserves the same name.

I am, Sir, yours faithfully,

Harley Street, W.1, July 11. A. PINEY.

SUNSHINE AND MENINGITIS

SIR,—Your issue of June 10 contains a letter from Dr. Douglas Hubble on Sunshine and Meningitis. When I was senior medical officer at the Nkana Mine in Northern Rhodesia in 1930 I had six cases of cerebro-spinal meningitis in Europeans, and of these patients three were people who were known to go about regularly without hats. Though six cases is an insufficient number on which to form any opinion, it struck me at the time that undue exposure to tropical sun might be a predisposing cause, and this appears to agree with Dr. Hubble's theory, which certainly seems to be worth further inquiry.

I am, Sir, yours faithfully,

Nanyuki, Kenya Colony, July 8. G. DUNDERDALE.

THE PROBLEM OF MEDICAL LITERATURE

SIR,—With further reference to the discussion initiated by Prof. McDowall, I should like to draw attention to a bibliographical tool not hitherto mentioned—namely, the "Subject Index to Periodicals," which includes the principal British medical journals among the 600 periodicals indexed. It is published annually in one volume by the Library Association, and reference may be made to it at all university and most public libraries.

The "Subject Index" is on the dictionary-catalogue plan. Entries are classified under specific subject-headings, which facilitates quick reference, and connexion is maintained between allied subjects by a system of easily understood cross-references.

The problem of obtaining access to any particular periodical is largely solved by the "location list" appended to each volume. In this list—which is believed to be at present a unique feature in periodical bibliography—the periodical holdings of more than 170 national, municipal and institutional libraries are set forth in tabular form.

I write in the hope that the "Subject Index to Periodicals," which has been functioning since 1915 along the lines indicated by previous correspondents, will prove of some value as a practical starting-point. I am, Sir, yours faithfully,

T. ROWLAND POWEL,
Editor, the Subject Index to Periodicals.

Chaucer House, Malet Place, W.C.1, July 17.

HAVELOCK ELLIS

SIR,—Your obituary of Havelock Ellis emphasises his work in encouraging an enlightened attitude towards sex. It refers only in passing to what must surely be considered the wider meaning of his life and work, his belief in the "basic identity of science and mysticism." It is as well to remember that to this clear thinker mystical experience was as "real" as the data of physiology or physics; for an unreal dichotomy in human experience is popular today, emphasised often by the partisan warmth of those who can see no other frame of reference than their own.

Medicine at the moment pays at any rate lip-service to the concept of psychosomatic unity. For a greater understanding of this, Havelock Ellis's *Weltanschauung* contains much that is of special value to us.

I am, Sir, yours faithfully,

Kenneth Court, S.E.11, July 16. C. W. M. WHITTY.

BLOOD-GROUPING OF THE POPULATION

SIR,—May I make a plea for a general grouping of all the population, into their blood-groups, so that in the event of hostilities it would be an easy matter to supply blood of a suitable group to the injured person. Also, it would be known where universal donors could be found quickly, or where universals could form a blood-bank for general use. This would also be of value in cases of accidents, road or otherwise, for any hæmorrhagic emergencies.

This could be arranged, either by the people attending at a pathological laboratory of a large county hospital, or the county medical officers of health. I am, Sir, yours faithfully,

Lewes, July 12. J. NICHOLL.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED JULY 8, 1939

Notifications.—The following cases of infectious disease were notified during the week: Smallpox, 0; scarlet fever, 1870; diphtheria, 892; enteric fever, 32 (50 "expected"); pneumonia (primary or influenzal), 452; puerperal pyrexia, 209; cerebro-spinal fever, 32; acute poliomyelitis, 15; acute polio-encephalitis, 1; encephalitis lethargica, 5; relapsing fever, 1 (North Westmorland R.D.); dysentery, 42; ophthalmia neonatorum, 91. No case of cholera, plague or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals of the London County Council on July 14 was 3000, which included: Scarlet fever, 750; diphtheria, 546 (carriers, 18); measles, 19; whooping-cough, 787; puerperal fever, 20 mothers (plus 9 babies); encephalitis lethargica, 306; poliomyelitis, 6. At St. Margaret's Hospital there were 20 babies (plus 10 mothers) with ophthalmia neonatorum.

Deaths.—In 126 great towns, including London, there was no death from smallpox or scarlet fever, 1 (0) from enteric fever, 7 (0) from measles, 10 (3) from whooping-cough, 28 (5) from diphtheria, 40 (14) from diarrhœa and enteritis under two years, and 10 (0) from influenza. The figures in parentheses are those for London itself.

Northampton reported the only death from typhoid. Gateshead had 3 deaths from measles, Birmingham 2. Birmingham also reported 2 deaths from whooping-cough. Fatal cases of diphtheria were scattered over 20 great towns, Luton, Bradford, Hull, Leeds, Liverpool and Manchester each reporting 2.

The number of stillbirths notified during the week was 263 (corresponding to a rate of 40 per 1000 total births), including 42 in London.

MEDICAL NEWS

University of Oxford

At a congregation on July 15 the following degrees were conferred :—

D.M.—W. H. Brown and R. McDonald.

B.M., Ch.B.—George Ashforth, J. W. Ashley, J. F. Bourdillon, J. T. Burrowes, N. F. E. Burrows, J. W. B. Douglas, E. S. Elliott, F. Fulton, S. J. S. Hughes, R. M. Lattey, J. A. L. Leeming, G. K. McGowan, J. N. Mills, E. S. Nicholson, M. M. Pickles, W. A. H. Stevenson, T. Sutton Coulson, S. F. Taylor, G. Theophilus, G. D. Walker, G. F. Walley, and R. T. Warren.

Staines Medical Research Fellowship.—This fellowship which has an annual stipend of £400 is tenable at Oxford for a maximum period of five years. It is open to candidates of British birth who are more than 35. They should preferably hold a registrable medical qualification. An election will be made in the course of the Michaelmas term and further information may be had from the rector of Exeter College.

University of Cambridge

A scholarship of the annual value of £100 or £60 is offered at Peterhouse to candidates who intend to study medicine. It is open for competition by an examination to be held in December, 1939, and may be awarded for proficiency in mathematics, classics, natural sciences or history. Particulars may be obtained from the tutor of the college.

University of London

At recent examinations the following candidates were successful :—

G. W. Boden, M. L. Mundy, Mohamed Nasiruddin, and Peggy C. Permain.

University of Birmingham

At a congregation on July 1 the following degrees and diplomas were conferred :—

Ph.D.—Stuart McDonald, M.B.

M.D.—C. H. Catlin.

M.D. (State Medicine).—D. F. McCarthy and J. V. Walker.

M.B., Ch.B.—P. H. Davison and B. A. E. Johns (first-class honours); P. W. W. Gifford, P. F. J. Hickinbotham, and Y. D. Williams (second-class honours); G. M. Barling, G. H. Boston, Anna R. Burrows, H. R. Chapman, J. S. I'A. Chesshire, Agnes H. Crozier, Doreen Davies, Margaret B. Davies, J. A. Duncan, T. B. FitzGerald, D. C. Galloway, A. A. Gattas, V. B. Goldman, Marion W. S. Green, Paul Harris, D. S. Johnson, Harry Kenyon, Elizabeth B. Linday, W. K. Lloyd, D. J. Macmillan, Lothar Marx, Percy Morrell, Margaret A. Norton, D. G. Richards, Eleanor M. Sawdon, Dorothy W. Smith, E. T. M. Smith, D. H. Thompson, and Margery B. Webb.

B.D.S.—J. L. Hardwick.

Diploma in Dental Surgery.—H. P. Britten, B. G. Davies, I. H. Jones, John Kitchen, A. J. Vaughton, D. E. Wallis, and E. W. Wiley.

University of Sheffield

Dr. Wilson Smith has been appointed to the chair of bacteriology in succession to the late Prof. J. W. Edington.

Dr. Wilson Smith, who is 42 years of age, was educated at Accrington Grammar School. He enlisted in the Royal Army Medical Corps in 1915, and served in France and Belgium with the 107th Field Ambulance B.E.F. from 1916 to 1919. After the war he studied medicine at the University of Manchester and graduated M.B. in 1923. He spent several years in private practice and in 1926 took a postgraduate course in bacteriology. The following year he obtained the diploma in bacteriology of the University of Manchester and was appointed research assistant to the director of the department of experimental pathology and bacteriology at the National Institute for Medical Research. In 1929 he obtained the M.D. Manc., with commendation and joined the scientific staff of the institute, and in 1934 he was promoted to the senior grade of the staff. In 1934 he was also appointed one of the editors of the *British Journal of Experimental Pathology*. Dr. Wilson Smith has published many papers, some in our own columns, on his investigations into the nature of viruses and virus diseases in general, on methods of standardisation and assay of anti-pneumococcus sera, and on the investigations of influenza pursued at the institute.

Mr. W. J. Lytle has been appointed hon. lecturer in surgery to dental students, and Dr. Andrew Wilson assistant lecturer in pharmacology.

The L.C.C. and King's College Hospital

There is great need for additional hospital bed accommodation in South London, and the L.C.C. therefore propose to accept the offer of King's College Hospital to place a ward at the council's disposal. The council has already decided to erect a new hospital in South London, but this is unlikely to be available before 1942.

Royal College of Surgeons of England

A quarterly meeting of the council was held on July 13 with Mr. Hugh Lett, the president, in the chair. Mr. Lett was re-elected president, and Sir Robert Kelly and Sir James Walton were elected vice-presidents for the ensuing year. Sir James Walton was readmitted, and Mr. R. J. Willan and Mr. Cecil Joll were admitted to the council. Dr. Donald Balfour (Mayo Foundation) and Prof. Peter Bull (Oslo) were admitted as honorary fellows. The John Tomes prize was presented to Mr. Arthur Bulleid and the Hallett prize was awarded to Mr. W. M. Beattie. Mr. F. H. Mills was appointed a Leverhulme scholar for three months. The tenth Macloghlin scholarship was awarded to R. H. Gorrill of Torquay Grammar School.

The following were elected for the ensuing year :—*Hunterian professors :* Dr. S. A. Henry, cancer of the scrotum in relation to occupation; Mr. C. P. G. Wakeley, treatment of certain types of external herniæ; Mr. Digby Chamberlain, treatment of stone in the common bile-duct; Mr. Rainsford Mowlem, use and behaviour of cartilage and bone transplants; Mr. Hermon Taylor, clinical evaluation of gastroscopy; Mr. E. C. B. Butler, treatment, complications and late results of acute hæmatogenous osteomyelitis; Mr. A. H. McIndoe, inlay grafting; Mr. T. F. Todd, urological complications of carcinoma of the cervix; Mr. D. L. Griffiths, Volkmann's ischæmic contracture; Mr. F. F. Rundle, the pathogenesis of thyrotoxicosis—clinical aspects; Mr. Kenneth Eden, dumb-bell tumours and neurofibromatosis of the spine; and Mr. F. H. Mills, pathogenesis of thyrotoxicosis—experimental aspects. *Arris and Gale lecturers :* Dr. John Beattie and Mr. M. W. C. Oldfield. *Erasmus Wilson demonstrators :* Mr. Robert Davies-Colley and Dr. L. W. Proger. *Arnott demonstrator :* Dr. A. J. E. Cave.

Dr. L. W. Proger was reappointed pathological curator of the museum, Sir Frank Colyer, hon. curator of the odontological collection, and Mr. C. J. S. Thompson, hon. curator of the historical collection. Prof. G. Grey Turner was appointed representative of the college on the council of King's College, Newcastle. The following were appointed assessors for the primary fellowship examinations to be held abroad next year :—

India.—Prof. M. A. H. Siddiqi (anatomy) and Lieut.-Colonel H. S. Anand (physiology).

Egypt.—Prof. Douglas Derry (anatomy), Prof. G. Von Anrep (physiology), and Dr. Boris Boulgakov (superintendent of dissections).

Diplomas of fellowship were granted to the following :—

J. R. Dickinson, Camb. and Guy's; G. H. Baines, Camb. and St. Thomas's; F. J. Cahill, Melb.; F. E. Stock, King's Coll.; and Y. M. Subhedar, Bombay.

A diploma of membership was granted to P. W. W. Gifford (Birmingham), and licences in dental surgery to the following :—

J. D. Anderson, M. S. Barrada, P. G. Berger, B. A. Bharucha, Hubert Brock, A. N. Butler, I. S. Cardell, F. A. Clements, T. N. G. Copestake, P. W. Davis, D. H. Davy, D. B. Doran, J. A. Dossor, J. C. Douglas, A. R. M. Fakhry, J. C. M. Flower, R. J. Gething, J. K. Gooch, L. M. Irwin, M. R. C. Kemp, Alan Kinghorn, W. B. Knapman, B. R. S. Leake, D. W. Macleod, G. A. McMurdo, L. D. C. March, D. D. Mears, Arnold Mowbray, D. C. Murray, J. M. Paterson, R. H. F. Pearce, H. R. Phillipps, T. N. Praat, Heinz Rawitz, G. G. G. Rees, Howell Rees, J. G. Richards, R. E. Savage, F. W. Sleeman, H. V. Spence, M. A. Tischler, G. M. Turner, Emmerich Weindling, and G. A. M. Whittall.

The following diplomas were granted jointly with the Royal College of Physicians :—

D.P.H.—L. A. Collins, E. A. Hardy, H. B. Hodson, S. B. Karani, S. A. Maclean, Margaret M. Meikle, Joseph Morana, and Kathleen M. N. Vickers.

D.P.M.—Rosie B. Becker, F. A. Bleaden, Neville Copeland, W. A. S. Falla, S. W. Gillman, F. P. Haldane, F. E. S. Hatfield, J. A. Herd, J. H. Hurt, H. A. C. Mason, Elizabeth H. Rosenberg, C. A. Rumball, J. P. Spillane, Joyce M. Stephen, G. T. Stockings, F. J. E. Stuhl, S. Le R. Switzer, J. A. Walters, and Fanny D. Wride.

D.L.O.—O. I. E. De Sousa, T. P. Hardie Neil, S. W. G. Hargrove, J. F. Jarvis, F. J. Kritzinger, E. F. Lai, K. G. Rotter, A. S. Shereen, Jagdish Singh, T. P. N. Sinha.

University of Manchester

Dr. David Stewart, lecturer in anatomy, has been appointed assistant director of the anatomical laboratory. Dr. T. E. Barlow and Dr. Sidney Mottershead have been appointed demonstrators in anatomy.

Dr. T. H. B. Bedford, Dr. William Brockbank, Dr. F. R. Ferguson, Dr. P. B. Mumford, Dr. J. F. Ward, and Dr. Raymond Whitehead have been appointed members of the board of the faculty of medicine.

Westminster Hospital

The annual dinner of the old students of this hospital will be held on Saturday, Sept. 30, at the Trocadero Restaurant, London, W.1. Dr. Hildred Carlill will be in the chair. Lord Burghley, M.P., will deliver the inaugural address of the session on Monday, Oct. 2, at 3 P.M.

International Society of Medical Hydrology

The next annual meeting of this society is to be held in Florence and the neighbouring spas from Oct. 14 to 19. The members of the congress will be housed in Montecatini for the first four days, and in Salsomaggiore for the fifth, but the opening meeting will be held at Florence. Subjects for discussion will be: physicochemical studies of the perspiration occurring after treatment by peloids; spa treatment of diabetes; and the action of solar rays on the skin of children. Further information may be had from the secretary of the society, 22, Bedford Place, London, W.C.1.

Crops and the Soil

In the course of an address to the Society of Chemical Industry this week Sir John Russell, F.R.S., director of the Rothamsted Experimental Station, referred to the effect of manuring on the quality of crops. Some people, he said, went so far as to claim that crops grown with inorganic fertilisers were themselves unhealthy, were unwholesome for human beings and for animals, and conduced to disease, whereas crops grown with organic manures remained healthy and health-giving. "No evidence is offered," he added, "nor do I know of any. All available evidence goes to show that the large crops grown with suitable fertiliser mixtures are at least as healthy and as nutritive as any others."

International Neurological Congress

The third International Neurological Congress will be held in Copenhagen from Aug. 21 to 25 under the presidency of Prof. Viggo Christiansen. The main topics for discussion will be the endocrine-vegetative system, the heredo-familial diseases, and neurological aspects of the vitamin deficiencies. Sir Henry Dale, F.R.S., will contribute a paper to the first discussion, and Sir Edward Mellanby, F.R.S., and Dr. C. C. Ungley will speak in the third discussion.

The congress will also meet in various sections, one of which will deal with neurological subjects and one with epilepsy. Further information may be had from the secretary of the British national committee, Dr. Macdonald Critchley, 137, Harley Street, London, W.1.

Imperial Social Hygiene Congress

A dinner for this congress was given on July 13 at the May Fair Hotel, London, by the British Social Hygiene Council. Dame Rachel Crowdy, proposing the toast of Health and Education in the Empire, paid tribute to Havelock Ellis, as one of the greatest pioneers of sex hygiene. She went on to speak with some misgiving of conditions in the West Indies which she had lately visited as a member of the Royal Commission. In some parts, she said, ten or fourteen people are living in rooms measuring only 10×12 feet, and there is little teaching and amusement for adolescents. The only preventive work she saw in Trinidad concerned the immunisation of bananas at the Tropical School of Agriculture. Sir Walter Langdon-Brown proposed The Guests and recalled that Dr. Gordon Bates, the general director of the Health League of Canada, supervised the film "Damaged Lives," which has now been seen by over 5 million people in this country. Dr. Bates, in reply, said that social hygiene means essentially an emphasis on the social responsibility that each man and woman in the world has towards every other man and woman. He spoke of the need for consistent propaganda through the radio, the newspapers, and otherwise. In referring to some of the achievements of the Health League of Canada, he remarked that last year out of 1000 pregnant women successively examined only 3 had a positive Wassermann reaction. The conquest of diphtheria, he said, rests entirely on education; the method of prevention exists but is not being used. In Toronto in the course of four years the incidence of this disease fell from 1022 cases with 65 deaths to 22 cases and no death. This year there had been only 2 cases in Toronto, a city of 800,000 people. Compared with this in Great Britain last year there were 62,000 cases of diphtheria. "Raw milk," continued Dr. Bates, "has caused more deaths than war itself," and yet France, the home of Pasteur, does not pasteurise her milk. In Toronto in the first year of pasteurisation the infantile mortality fell by 30 per cent. and bone tuberculosis of bovine origin vanished. Compared with this in Glasgow one hospital is devoted to the care of this form of bone tuberculosis. Dr. J. M. Mackintosh paid tribute to the health work stimulated by Mr. L. S. Amery, as president, notably the inclusion of venereal diseases treatment in Mr. Lloyd George's health-insurance scheme.

Cosmetics

A plea for more serious attention to the medical aspect of the cosmetics industry was made by Mr. H. Stanley Redgrove addressing the annual meeting of the Society of Chemical Industry at Exeter on July 12. "Unfortunately," he said, "medical men have been too engrossed with combating the ills which cause death to devote attention to those which produce merely ugliness. Hence the story of curative cosmetics is largely a story of chicanery." It was difficult for a woman to judge of the merits of a cream whose persistent use, it was claimed, would restore a lost complexion. The task was one for the dermatologist. "There is, in my opinion, only one satisfactory method of evaluating a cream for which permanent beautifying effects are claimed. Of a series of subjects, one-half of the face must be treated over a sufficient period with the cream in question, and the other half, for the same period, with a cream identical in composition with the first cream save for the omission of the special ingredient whose action is under investigation. It is practically impossible to persuade women to carry out rigorous tests of this character. They can be done in hospitals only."

Births, Marriages and Deaths

BIRTHS

DEWSBERY.—On July 9, at the London Clinic, the wife of Dr. J. P. Dewsbery—a daughter.

DIVINE.—On July 11, at Singapore General Hospital, the wife of Dr. T. A. Divine—a daughter.

HALL.—On July 9, at 174, Sutherland Avenue, W.9, to Marcia, wife of Dr. Vernon Hall—a daughter.

NELSON.—On July 16, at Bournemouth, the wife of Dr. Wallace Nelson, Gold Coast—a son.

MARRIAGES

KEKWICK—PEARCE BROWN.—On July 8, at Holy Trinity, Brompton, Alan Kekwick, M.B., M.R.C.P., to Susan Pearce Brown.

MOLESWORTH—MOORE.—On July 15, at St. Albans Abbey, Brownlow David Molesworth, M.B., to Rosemary Katharine Moore.

YOUNG—HOOPS.—On July 4, at St. Jude's Church, Courtfield Gardens, London, Bertram A. Young, M.D., M.R.C.P., to Betty M. Hoops.

DEATHS

DEWES.—On July 13, at Blackheath, Frederick Joseph Dewes, M.R.C.S., lieut.-colonel, I.M.S. (retd.).

DYMOTT.—On July 15, at Camberley, Surrey, Donald Frederick Dymott, major, I.M.S. (retd.), aged 83.

HUNT.—On July 14, Ernest Rivaz Hunt, M.D. Camb., M.R.C.P., of 18, Palmeira Avenue, Hove, Sussex, aged 66.

MELLANBY.—On July 15, John Mellanby, M.D. Camb., F.R.S., Waynflete professor of physiology and fellow of Magdalen College.

PHILPOT.—On July 11, at 19, Campden Hill Square, W.8, Joseph Henry Philpot, M.D. Lond., M.R.C.P., in his 89th year.

N.B.—A fee of 7s. 6d. is charged for the announcement of Births, Marriages, and Deaths.

Appointments

ASPIN, D. E., M.B. Glasg., assistant medical officer of health (A.R.P.) for Blackburn.

BAILLIE, M. HAYDON, M.R.C.S., resident medical officer at the Borough General Hospital, Warrington.

CLARK, J. M. P., M.B. Leeds, F.R.C.S., medical superintendent at the Marguerite Hepton Memorial Orthopædic Hospital, Thorp Arch, Yorks.

CRABB, D. R., M.B. Lond., surgeon to the City of London police force.

FORDE, NANCY, M.B. Manc., junior assistant medical officer at the Wadsley Mental Hospital, near Sheffield.

GREEN, H. J., M.B. Aberd., F.R.C.S.E., registrar and obstetrical tutor at the Jessop Hospital for Women, Sheffield.

HASLEGRAVE, IRENE, M.B. Leeds, resident medical officer at the York Dispensary.

HEAP, M. J. MCKENZIE, M.R.C.S., resident house-surgeon at Royal Manchester Children's Hospital, Pendlebury.

HILL, B. P., M.B. Manc., D.P.H., hon. assistant anæsthetist to the Royal Berkshire Hospital, Reading.

HUDDY, E. C. H., M.B. Lond., D.P.H., assistant medical officer of health for Finchley.

HUGHES, EDWARD, M.D. Lpool, D.P.H., medical officer of health and port medical officer for Dover.

JONES, J. D. T., M.B. Durh., junior surgical registrar at the Royal Victoria Infirmary, Newcastle-on-Tyne.

LENDRUM, J. D., M.B. Manc., D.P.H., assistant county tuberculosis officer for Worcestershire and resident medical officer at King Edward VII Memorial Sanatorium, Knightwick.

LYLE, J. S., M.B. Edin., F.R.C.S.E., resident surgical officer at the Royal Infirmary, Bradford (reappointment).

MURPHY, J. M., M.B. Dubl., D.P.H., resident assistant medical officer at the City Isolation Hospital, and temporary assistant medical officer for Cardiff.

O'GORMAN, F. J. P., M.B. Glasg., senior resident officer at the Jessop Hospital for Women, Sheffield.

ORTON, ROBERT, M.B. Leeds, assistant medical officer at Storthes Hall Mental Hospital, Kirkburton, near Huddersfield.

OWENS, W. E., M.B. Camb., D.A., hon. anæsthetist to the Hospital for Women, Soho Square, London.

PAYNE, R. W., F.R.C.S.E., D.O.M.S., hon. surgeon to the Royal Eye Infirmary, Plymouth.

ROWLANDS, E. N., M.D. Manc., resident medical officer and assistant pathologist at the Royal Infirmary, Bradford.

SAXTON, R. S., M.R.C.S., assistant medical officer for civil defence for Brighton.

WAYTE, A. B., M.R.C.S., chief clinical assistant to the X-ray (diagnostic) department of the West London Hospital.

WOODHEAD, ALICE L., M.D. Manc., M.R.C.O.G., consulting gynæcologist for Hackney.

WYNTER, TAMSIN, M.D. Lond., D.A., hon. anæsthetist to the Hospital for Women, Soho Square, London.

Charing Cross Hospital, London.—The following appointments are announced :—

JAMES, K. L., M.S. Lond., F.R.C.S., cancer and radium registrar ;

REYNOLDS, S. R., L.R.C.P., clinical assistant in the X-ray and electrotherapeutic department ; and

BURFORD, H. G., B.M. Oxfd, clinical assistant in the dermatological department.

London County Council.—The following appointments are announced. A.M.O. (I) or (II) = assistant medical officer, class I or class II :—

SMELLIE, ELSPETH W., M.B. Oxfd, A.M.O. (I), White Oak ;

LEGGETT, H. A., M.B. Lond., A.M.O. (II), Grove Park ;

MCDOWELL, L. A., M.B. Belf., D.P.H., A.M.O. (II), King George V Sanatorium ;

MEAGHER, MARY W., M.B. N.U.I., D.P.H., A.M.O. (II), White Oak ;

SHARKEY, JOSEPH, M.B. Dubl., A.M.O. (II), Archway ;

FLETCHER-JONES, H. C., M.B. Lond., A.M.O. (II), Archway ;

WYMAN, A. L., M.B. Lond., A.M.O. (II), Archway ;

WALSH, J. J., L.R.C.P.I., D.P.H., A.M.O. (II), Dulwich ;

LEWIS, R. I., M.D. Lond., A.M.O. (II), Paddington ;

DAFOE, C. S., M.D., A.M.O. (II), St. Alfege's ;

LAWRENCE, J. S., M.D. Edin., A.M.O. (II), St. Nicholas' ;

MILLER, S. J. H., M.B. Aberd., A.M.O. (II), St. Peter's ;

CRAIG, N. S., M.D. Manc., D.P.H., medical superintendent, St. James' ;

MCCREA, A. N., M.B. Camb., F.R.C.S., senior A.M.O. (II), Highgate ; and

VERNON, H. K., M.B. Durh., F.R.C.S., senior A.M.O. (II), St. Stephen's.

Vacancies

For further information refer to the advertisement columns

Belfast Royal Maternity Hosp.—Res. M.O. in charge Rea Block (Isolation), at rate of £100. Also two res. M.O.'s, each at rate of £52.

Belgrave Hosp. for Children, Clapham Road, S.W.9.—Asst. physician.

Benenden, Kent, National Sanatorium.—H.P., at rate of £150.

Birmingham, Dudley Road Hosp.—Jun. M.O., at rate of £200.

Birmingham City.—Res. asst. M.O., £450.

Birmingham City Education Committee.—Asst. school M.O., £500.

Birmingham United Hosp.—Asst. surgeon to throat and ear dept., £50.

Blaydon Urban District Council, &c.—M.O.H., £800.

Brighton County Borough.—Sen. M.O. and asst. to M.O.H., £800.

Bristol University.—Asst. lectureship in pathology, £300.

Burnley County Borough.—Asst. M.O., £500.

Cambridge, Addenbrooke's Hosp.—H.S., at rate of £130.

Cardiff, Isolation Hosp.—Asst. res. M.O., £250.

Chesterfield and North Derbyshire Royal Hosp.—Res. surg. O., £300.

Colchester, Royal Eastern Counties' Institution.—Asst. M.O., £350.

Derbyshire Education Committee.—Asst. school M.O., £500.

Dorchester, Dorset County Hosp.—H.S., at rate of £150.

Dudley, Guest Hosp.—Res. surg. O., at rate of £250–£300. Also H.S., at rate of £150.

Edinburgh, Princess Margaret Rose Hosp. for Crippled Children, Fairmilehead.—Sen. and jun. res. surg. O's, £200 and £100 respectively.

Elizabeth Garrett Anderson Hosp., Euston Road, N.W.1.—Hon. asst. anæsthetist, 10 guineas.

Evelina Hosp. for Sick Children, Southwark, S.E.1.—H.S., at rate of £120.

Godalming, Surrey County Sanatorium.—First asst. M.O., £570.

Halifax Royal Infirmary.—Cas. O. for fracture clinic, at rate of £150.

Harrogate, Royal Bath Hosp.—Res. M.O., £200.

Henley-on-Thames, Berks and Bucks Joint Sanatorium.—Second res. asst. M.O., £350.

Hull Royal Infirmary.—Second H.P. and second cas. O., each at rate of £150.

Ilford, King George Hosp.—Hon. anæsthetist.

Ipswich County Borough Sanatorium.—Asst. M.O., £350.

Kidderminster and District General Hosp.—Sen. H.S., at rate of £150.

Lancaster Royal Infirmary.—Cas. O. and orthopædic H.S., at rate of £130.

Leeds Jewish Hosp., 9, Leopold Street.—Res. M.O., £200.

Liphook, Hants, King George's Sanatorium for Sailors.—Asst. M.O., at rate of £200.

Liverpool Heart Hosp., Oxford Street.—H.P., at rate of £100. Also clin. assts.

Liverpool University.—Demonstrator in physiology, £300.

Maida Vale Hosp. for Nervous Diseases, W.9.—H.P., at rate of £100.

Maidstone, West Kent General Hosp.—H.P. and H.S., each £175.

Manchester, Ancoats Hosp.—Two H.S.'s, one for orthopædics and one for joint post of H.S. to ear, nose and throat dept., and H.P., each at rate of £100.

Manchester, Christie Hosp. and Holt Radium Institute, Withington.—Asst. M.O., £400. Also res. M.O., at rate of £150.

Manchester, Royal Children's Hosp., Pendlebury.—Res. surg. O. and asst. M.O. for outpatients' dept., each at rate of £150.

Manchester, Royal Eye Hosp.—Jun. H.S., £120.

Manchester, Saint Mary's Hosp.—H.S. for Whitworth Park Hosp., at rate of £50.

Manchester Northern Hosp.—Res. H.P. and res. H.S., each at rate of £100.

Manchester Royal Infirmary.—Asst. surgical officer, £70.

Middlesbrough, Poole Joint Sanatorium, Nunthorpe.—Med. supt., £900.

Ministry of Health.—Medical officers, each £850.

Nelson Hosp., Merton, S.W.20.—Res. H.S., at rate of £150.

Northampton General Hosp.—H.S., at rate of £150.

Nottingham General Dispensary, Hyson Green Branch.—Res. M.O., £300.

Oldham County Borough.—Temporary asst. M.O.H., £500.

Penzance, West Cornwall Hosp.—H.S., at rate of £150.

Portsmouth, Saint Mary's Hosp.—Jun. asst. res. M.O., £250.

Portsmouth Royal Hosp.—Cas. O., at rate of £130.

Preston, Sharoe Green Hosp.—Jun. asst. res. M.O., at rate of £100.

Queen's Hosp. for Children, Hackney Road, E.2.—H.S. and cas. O., each at rate of £100.

Reading, Royal Berkshire Hosp.—Res. anæsthetist, at rate of £250.

Royal Army Medical Corps.—Vacancies.

Royal Free Hosp., Gray's Inn Road, W.C.1.—Clin. asst. in gynæcological dept. Res. cas. O., at rate of £150. Also first asst. in children's dept., £100.

Royal Naval Medical Service.—Medical officers.

St. Mary's Hosp., W.2.—Second res. anæsthetist, at rate of £125.

Sheffield Royal Infirmary and Hosp.—Res. H.S. to ophthalmic dept., at rate of £80–£120.

Southampton Children's Hosp. and Dispensary for Women.—Res. M.O., at rate of £150.

Tavistock Clinic, Malet Place, W.C.1.—Pædiatrician, £50.

University College Hosp., Gower Street, W.C.1.—Sen. asst. radiologist, £250.

University of London, King's College, Strand, W.C.2.—Lecturer in physiology, £350.

Wakefield City.—Jun. asst. M.O., £500.

Walsall General Hosp.—Res. surg. O., £300.

Weir Hosp., Weir Road, Balham, S.W.12.—Sen. res. M.O., £250.

West Malling, Kent, Leybourne Grange Colony.—Asst. res. M.O., £350.

Westminster City.—Second temporary asst. M.O.H., £600.

Wolverhampton, Royal Hosp.—Asst. res. M.O. for gynæcological and obstetric dept., at rate of £100.

Worcester County and City Mental Hosp., Powick.—Asst. M.O., £350.

The Chief Inspector of Factories announces a vacancy for an examining surgeon at Moffat (Dumfries).

"... One enterprising baby of my acquaintance has already arranged to publish his memoirs in collaboration with a famous psycho-analyst as soon as each of them has learned to write intelligible English."—IRWIN EDMAN in "Philosopher's Holiday," London, 1939.

NOTES, COMMENTS, AND ABSTRACTS

THE CULTURAL BACKGROUND OF THE HEALTH EDUCATOR*

BY IAGO GALDSTON, M.D.
DIRECTOR OF THE INFORMATION BUREAU, NEW YORK ACADEMY OF MEDICINE

THE position of the health educator is radically different from that of his associates. His intellectual stance, the working patterns of his mind, are in essentials diametrically opposite to theirs; and properly applied, they serve as correctives.

Who are the co-workers of the health educator? They are those from whom he draws his factual materials, the raw but meaty elements of that which he teaches. They are, to name them singly, the biologist, the physiologist, the pathologist, the medical clinician, the therapeutist, the sanitarian, the vital statistician. (There are also the public-health administrators, and the technicians of educational methods and media; but they form a rather different, perhaps secondary, group.) These and many others have one large characteristic in common, which he does not share. They are scientists; whereas the health educator is not. Of course as an individual the scientist may also be an educator, in that he may teach his specialty. The health educator may also be a scientist, or may even attempt to make a science out of his teaching. But this does not affect the basic difference of function. We may say that the health educator and his co-workers look through the opposite ends of the telescope; or, better still, the scientist employs the microscope, the health educator the telescope; the one scrutinises the infinitesimal, the other the universe.

Science has so captivated us that to speak of a professional group as not being composed of scientists almost conveys a stigma. But for my part I intend no derogation of the health educator. On the contrary, I want to dissipate the sense of inferiority that often affects him, and to spare him from aping his at times rather arrogant associates, the scientists, to whom the catch-phrase, "Those that can, do; and those that can't, teach," appeals as the quintessence of wisdom.

SCIENCE NOT ENOUGH

There are other functions to be performed besides those of the scientist. One may for example be a philosopher; a person of broad learning, a devotee of *scientia*, of embracive knowledge, intuitionally as well as inductively acquired. At the present time it looks as though the world suffers from a plethora of scientists and a dearth of philosophers. I am certain as to the latter, and the seeming plethora of scientists may only be a reflection of the dearth of philosophers. What does being a scientist imply? It implies first of all the restriction of interest, inquiry, and concern to some segment or phase of being, animate or inanimate, individual or universal. It means specialisation; it means isolation and abstraction of that which is dealt with from the rest of existence to which it is related. It means perforce distortion, an attempt at clear definition in terms inherently obscure. It means also the pursuit of a line of endeavour which has yielded powerful means and great knowledge wherewith to master the environmental world.

I should not be surprised if some took exception to these statements. But I would urge the dissenters to judge science and the scientists by their works. Predominatingly these have been analytical; the large whole has been fragmented, broken into smaller and ever smaller parts, and each part carried further and ever further away from its parent body. Such basically, essentially, unavoidably and desirably are the functions of the scientist, and no-one who has any acquaintance with the labours of the bacteriologist, the biochemist, the vital statistician, and the rest of our co-workers will deny this.

Lest some think that in over-compensation for not being of the scientists I gloat in parading their limitations, let me say that I am emphatic only that I may better present the compensating and corrective services which the non-scientific, but I would hope philosophical, health educator must render. The function of the scientist is analytical, that of the health educator is integrative. Perhaps the reason why "all the king's horses, and all the king's men, couldn't put Humpty-Dumpty together again" was because they were all scientists.

The tangent of the scientist's efforts runs to the object of his study; that of the health educator runs ultimately to the individual human being. The scientist may—indeed often must—afford himself the luxury of an uncharted pursuit of his subject; he takes pride in pure science. Not so the health educator; he is functionally committed to practical purposes. He labours for definite ends defined in terms of ever greater human well-being and happiness. The scientist can lock himself up with his rarefied concern, shutting out the to-him-irrelevant outside world. The health educator must, on the contrary, be ever more embracive in his interest, understanding, and function. The scientist is free to pursue his inquiry wherever it leads him. The health educator is man-bound. The scientist must ask, "is it true?"; the health educator in addition must ask "is it pertinent?" The health educator must sift facts and knowledges through the sieve of relevancy to mankind. For these reasons the scientist need not know what the health educator must.

In contrasting the functions of the scientist and health educator, in setting in apposition their intellectual prerequisites, I intend no weighing in balance, and no measuring of merits. I do not know that the one is superior to or more valuable than the other. I do know that they are complementary; and also distinct from each other. I know in addition that many among the scientists look upon the health educator as something of a camp-follower, as a collector of scraps, and a peddler of diluted information. At a more generous level they look upon the health educator as an interpreter or translator of science to the multitude. There are exceptions among the scientists; their number is growing, but withal they are still in the minority. Unfortunately not a few among the health educators share somewhat the same honourless views of their function, and do not fully appreciate the value and importance of their services. Instead of qualifying ever better for their job by cultivating their integrative powers, they ape the analytical techniques of their co-workers. They strain at the microscope, instead of sweeping the vast horizon with the telescope.

The health educator teaching science instead of well-being, talking to the fact rather than to the man, presents a disheartening picture of energy

* Abridged from an address to the American Public Health Association.

misapplied, of opportunities muffed, and futility and failure eagerly embraced. He serves stones to those that ask for life-sustaining bread. He mouths a language foreign to those who seek guidance and help. He is without a sense of relevancy and has lost his bearings. The infertility of much in health education springs from this common confusion as to the rôle and function of the health educator.

The health educator is *man-bound*. He cannot afford himself the luxury of pure science. Everything must have reference to man, with the health educator. Every crystallised angular "truth" mined by the scientist must be cut down and polished to fit the peculiar setting, man. Isolated consideration of an established fact is not permissible to the health educator. He must view the fact in its multiple relations, for he is man-bound, and man is a creature of multiple relations. To the scientist the effective cause of syphilis is the spirochæte; to the health educator the spirochæte is only a contributory and at that a secondary cause. To the health educator the prevalence of syphilis depends very largely on dominant motives, on prevailing ideologies, on current objectives in life; if you please, on the prevailing culture in the community. The eradication of syphilis may be sooner effected by a modification of the prevailing culture than by the arsenicals and heavy metals.

In an over-simplified—i.e., scientific—association of ideas it may appear proper and promising to endeavour to stamp out a plague by prohibitive legislation. The non-scientist but philosophic critic, aware of the multiple relations of man, may argue that prohibitive compulsive legislation is seldom effective in attaining the ends sought, and that it always reduces the moral strength of those to whom it is applied.

KNOWLEDGE AND OUTLOOK

The health educator is man-bound: man is his reference point; he must therefore have a comprehensive knowledge of man, of the creature called *Homo sapiens et sentiens*. What does this imply? Some little knowledge of man as a physicochemical mechanism; but a deep knowledge is not essential. The human mechanism is the province of the scientist, who will readily supply the inquiring health educator with the facts desired, which of course must be accepted on faith and in the hope that the scientist really knows whereof he speaks. However, much and deep knowledge the health educator should—indeed must—have of man as a social animal. The multiple relations of man are social in origin and nature. The health educator confronts man not as a physicochemical mechanism but as a social animal, a creature of the family, and of the community.

Man is a creature with a history—and the knowledge of man as a social animal can be gathered through the keen and critical study of his history. Such knowledge is not to be gained from the standard history-books, most of which are devoted to wars and the exploits of the governing sovereigns and classes. It is the cultural history of mankind that the health educator needs to know, beginning at least with the Greeks of the Periclean period.

Man is the builder of an *oikos*, and a maker of tools. A knowledge of the economic and technologic history of mankind is vital to the cultural training of the health educator. Among some groups the economic factor in human existence today overshadows all others and the materialistic interpretation of history is believed to be the only one to afford us a correct understanding of man's motives and actions. This is a provincial belief. On the other hand, the economic factor in human existence is of tremendous significance, and the lower the subsistence level of the class the greater its operative strength is among them. A starving man is of necessity entirely preoccupied with food. The economic factor is a potent catalyst among those of greater fortune, but among them it operates not as a prerequisite to subsistence but as the embodiment of power and prestige. Our much-neglected economist and sociologist, Thorstein Veblen, expounded this in his book, "The Theory of the Leisure Class."

The technologic history of man is intimately related to the growth of scientific knowledge, and should be studied in that association. The growth of science since the time that Francis Bacon so brilliantly advocated the inductive method of research deserves special study. For gratifying as it is to follow the brilliant and intuitional sorties of Pythagorus, and the more utilitarian works of Archimedes, we *are* the children of modern science. However it is necessary to point out that most students of the history of modern science are too restricted in their survey. It is not enough to know the years of Galileo, of Harvey, or of Descartes, nor yet the particular contributions of Newton, Lavoisier, or Schleiden. To these must be added the knowledge of the effects produced by these men and their works on the cultural state of the ages during which they lived. Copernicus did not merely reverse the gyrations of the sun and the earth; he shook the very firmaments, and dethroned man. Laplace did not merely formulate a dynamics of the universe, he deliberately and somewhat contemptuously excluded God from any part in the management of the universe. Darwin created an Aristotelian classification of living things, and advanced a Platonic hypothesis of progression which he termed organic evolution. Darwin was guiltless of any rash or raw application of his theory of evolution to those phases of being which transcended his subject matter. But to his followers, numbered in millions, the struggle for existence and natural selection proved compelling ideas which discredited the ethical ideals preached by the Nazarene. Man, however, is not only a thinking creature, but also a spiritual, ethical being. The foundation of civilisation is not figuratively the top layer of the human brain, his thinking mechanism, the pallium, but rather the underlying hypothalamus, the feeling centre. Man's gregariousness made possible the instrumentalities of learning. Johnny Appleseed who planted so that those who came after him might reap, is symbolic of the best in man. Mutual aid, as Prince Kropotkin taught, and not the ruthless cut-throat competition of the deluded "realists," yielded all that is precious in civilisation. These deepest instincts of man have found expression in his professed ethics, and have been formulated in his religious confessions.

Modern science has taken little cognisance of the spiritual, ethical, and religious aspects of human existence. Its measuring instruments have proved unsuited for the analytical study of man spiritual. Unable to grapple with the problem, science has argued away its existence; or being at times compelled by necessity, as when dealing with physiological psychology, to recognise the existence of "hope, faith, and charity," science has brought forth vapid mechanistic theories and equivalents of the soul.

There is, of course, no warrant for demanding that he who labours in search of the secrets, say of the viruses, shall also be competent to answer the riddles

of the human soul. It will be well enough, as it seldom is, if the scientist sticks to his job and does not presume with his restricted competence to give judgment on matters outside his ken. Unfortunately, the shoemaker does not always stick to his last. The health educator must know not only the glories and achievements of modern science, but also its pretentions and limitations. The health educator should know not only of the ecclesia's war upon science, but also of science's bitter war upon the ecclesia, which is understandable and to be forgiven, as well as of its war on religion, which may also be understood, but is harder to forgive.

Finally, the health educator should not be without a knowledge of the great literature of the human race. For otherwise he misses sharing in the most precious heritage of man.

* * *

The cultural training of the health educator which I've sketched is not given as a curriculum for the novitiate. It is not an absolute prerequisite to service. It is a life-time task, never to be completed. But it is a desideratum; it is an obligation to the fulfilment of which we must devote our best years and energies.

NURSES IN INDIA

THE Indian Nursing Statistics for 1937, compiled for the Trained Nurses' Association of India by Prof. John Maclean, cover only British India, giving no information about the conditions of nursing in the native states. In the 803 hospitals covered, with more than 20 beds each, there are 51,488 beds and 3259 trained and 3517 untrained nurses, as well as 565 male nurses. The 1128 hospitals, with less than 20 beds each, have in all 14,195 beds and 743 trained and 53 untrained nurses, as well as 82 male nurses. Unfortunately the returns from the different hospitals are made in a great variety of ways, some including male nurses in their totals, and some not doing so, for example. As a result, it is impossible from the figures given to draw any reliable inferences about the number of patients per nurse; the returns under this heading vary from 3 to 1456! The position is further complicated, as nursing help is, in many hospitals, given by relatives. Prof. Maclean is well aware of the deficits in these statistics, and has added a long list of corrections, together with a list of "entries suspect and requiring comment, if not correction." It is to be hoped that the necessity for more accurate returns will be borne in upon the numerous hospital authorities.

On July 14, at a session of the Imperial Social Hygiene Conference, Miss D. Hartley, secretary of the association, said that recently, without warning, an order had been issued in Madras cutting down the salaries of nurses by nearly half and stopping their special food allowances. Further, in future male patients would be in charge of male nurses only. This was affecting the recruitment of the best type of nurses in Madras.

TO COUNTERACT ANXIETY

THIS little book[1] is written in a popular manner for the many who are feeling the effects of tension. The writer has obviously had much experience of the thorny paths of neurosis, and his advice is drawn from what he has found most valuable in the teachings of the various schools of psychotherapy. His division of the causes of acute anxiety into three—separation, guilt, and inferiority—is well conceived, and it may come as a surprise to patients, if not to their doctors, that their symptoms arise not from the political situation but from their own make-up. Resentments are fully explained and helpful practical suggestions are made for their sublimation. Whether, as seems to be suggested in the first chapter, discipline is sufficient to counter negative methods of thought is open to doubt, and the categorical statement that children cannot stand ridicule needs qualification. The chapter which deals with religion and the open mind that welcomes the help it may give should be of value to a generation which represses the religious instinct.

1. Fear and Depression: Their Causes and Self-Treatment. By a Medical Psychologist. Birmingham: Cornish Bros. 1939. Pp. 90. 5s.

A PORTRAIT OF REES

THERE are few portraits of George Owen Rees, whose activities as a pioneer in biochemistry were briefly described in our last issue; the British Museum apparently does not possess one. A painting was made, however, by S. Buck (not to be confused with the famous Samuel, who, with his brother Nathaniel, produced the well-known topographical series of engravings), and from it a mezzotint was made by Sydney Marks. A copy, which has until recently been in the family of one of Rees's intimate collaborators, has reached the hands of Messrs. Suckling and Co. of London. It is in perfect condition and bear Rees's autograph in pencil below the engraving: "Truly yours, G. Owen Rees."

LIMITATION OF OPIUM PRODUCTION

THE proposals of the advisory committee on the traffic in opium, dealing with the limitation of production of raw opium, have now been presented to the council of the League of Nations, together with a draft of the articles which might be incorporated in a new convention. Subject to certain reservations on behalf of some of the Powers there was general approval of the draft articles and, with some revision, these are to be submitted to the respective governments for their observations. Thus Turkey welcomed the proposals, if convinced that the limitations proposed would effectually reduce illicit traffic, and that all countries concerned were prepared to coöperate. Yugoslavia, another producing country, wanted to be satisfied as to the crops which would replace poppy cultivation, and that the extraction of morphine from poppy stalks and capsules would be forbidden. The Canadian representative was not satisfied with the information available in regard to opium production in Manchuria, China, Afghanistan and Iran, nor as to the Peruvian monopoly of prepared opium, while the representative of China, disclaiming any responsibility for what is going on in provinces dominated by Japan, was prepared to achieve suppression of poppy cultivation in the area under Chinese jurisdiction not less rapidly than any other producing country.

The principles which underlie the new draft convention are explained as being intended to supplement the provisions of the Hague Opium Convention of 1912 and of the Geneva conventions of 1925 and 1931. Production of raw opium is to be restricted to what is required (1) for medical and scientific purposes, (2) for manufacture of prepared opium pending its suppression, and (3) for "other non-medical forms of internal consumption." This last is presumably intended to meet the case of opium-eating as officially approved in India. The amounts

of world requirements are to be arrived at by annual governmental estimates to be sanctioned and allocated by a controlling authority consisting of five members, the allocation to be either by quota or by a "free order system." Producing countries will undertake not to sow with poppy an area larger than will suffice to yield the allotted amount of raw opium, nor to export more than is assigned to them. Stock will have to be regulated and an adequate system of international control brought into operation.

The advisory committee has wisely requested the council to submit the draft proposals to a committee of jurists in order that they may "be put into proper legal form" and has nominated fifteen governments to appoint such jurists.

ALCOHOL IN RELATION TO CRIME

FOLLOWING Dr. Norwood East's opening remarks at the discussion before the Society for the Study of Inebriety (reported on p. 136 of last issue) Dr. J. C. M. Matheson said he could confirm Dr. East's statement about the decrease in the number of female alcoholics received at Holloway Prison. The daily average number of persons in custody convicted of drunkenness for the month of March, 1939, was, he said, 24·3 per cent. of the total prison population. I have, he continued, searched the histories of all the women received into Holloway Prison, charged with murder, since September, 1935, for a history of alcoholism with the following results. Total number of prisoners received on a charge of murder—48. In no case where a conviction followed was alcohol found to be a factor. In 1 case the prisoner was reported to have frequented public houses with her lover but she was never reported to have been drunk, and the police considered her to have sober habits. In 3 cases the habits of the women were irregular, 2 had been living rough, and 1 had been "on the streets," but there was no evidence that alcohol had played any part in the crime with which they were accused. In 1 case alcohol appeared to play a direct part. The victim was killed in a drunken brawl; at the trial the prosecution offered no evidence against the female accused, and she was found "not guilty."

RESERVES AND SUPPLIES OF FOOD

THE *British Medical Journal* last week offered suggestions for the home storage of food against a shortage in emergency. The British Medical Association (Tavistock Square, London, W.C.1) has issued these suggestions in a 2*d*. booklet entitled "How to Stock Your A.R.P. Larder." It shows the householder how best to act on the Government's advice that all who can do so should lay in a week's store of victuals.

The larger question of supplies and storage are considered in "The Food Problem" by F. Le Gros Clark and R. M. Titmuss, issued in the Penguin series at 6*d*. This book will do a public service if it wakes the reader into a realisation of the need for organising the food-supply of this country not only for war but for peace. Mr. Le Gros Clark discusses the relation of war and scarcity, the effect of blockade, home-farming and war, storage of food, the dispersal of stores and the future of the food trades. His conclusion is that sources of food and fuel are the weakest links in our chain of defence and that nothing but a sound policy of food storage, and control of such stores and policy by a representative food council, will make that link strong. The second portion of the book is concerned with stamina; and for this portion the two authors are jointly responsible. In spite of all the wastage of human life they see in our present organisation of society and the needless deterioration of stamina through insufficient and wrong food they conclude that "there is no basis whatsoever for pessimism or despair." They believe that with a sound food policy "we could be rearing a stock that would surprise the world by its vitality. So slight and so significant is the borderline between normal and subnormal humanity."

BLOOD-TRANSFUSION IN INFANCY

AN analysis has been made by E. Garcia Pérez of 4500 blood-transfusions given in three and a half years to children in the Hospital Municipal de Infancia, Havana (*Arch. Med. infant.* April–June, 1939, p. 106). That the tender age of a child is considered no bar to such treatment is shown by the fact that 107 transfusions were given to infants aged 1–30 days, 2183 to infants aged 1–12 months, and 1033 to those aged 1–2 years, making a total of 3323 to infants aged two years or less, as against only 1177 to older children up to twelve years. The remedy seems to be widely applied: toxæmia and convulsions were the indications for 2013 transfusions, and 176 were given for bronchopneumonia. The results in bronchopneumonia (acute non-tuberculous disease of the lung) are detailed by Agustin Castellanos and René Montero (*Ibid*, p. 115), who used 150–250 c.cm. of blood, obtained usually from a parent. No anticoagulant was employed, and the veins chosen were either the internal saphenous, external jugular, or antecubital. No reaction was observed and no accident happened. In the great majority of cases the fever, dyspnœa, and general symptoms abated. Cardiac insufficiency was not regarded as a contra-indication, but in its presence the preliminary withdrawal of a quantity of blood equal to that about to be injected is recommended.

In an analysis of 129 cases of infantile diarrhœa in infants aged two years or less, of whom 98 were given blood-transfusions, Cardelle Penichet, Hernández and Durán Castillo (*Ibid*, p. 138) report a case-mortality of 49 per cent. in those transfused and 42 per cent. in the others; but, in spite of these figures, they believe that *early* transfusion lowers the fatality. On the other hand, J. M. Smellie has pointed out (*Lancet*, 1938, **1**, 1029) that these infants as a rule are not deficient in either erythrocytes or hæmoglobin, and holds that blood-transfusion is definitely undesirable except in those few who are proved to be anæmic. Otherwise the addition to the total of erythrocytes merely throws an extra strain on the child. The need of transfusion to counter toxæmia has led to the giving of transfusions of blood-plasma alone.

A HUNDRED YEARS IN THE NURSERY.—Few remedies can have kept their place in the family medicine cupboard as firmly as Dinneford's Fluid Magnesia, which has lately celebrated its centenary. Its gentleness and palatability appealed to our forbears in their young days, and they appeal no less to our own children.

Medical Diary

July 24 to July 29

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

BRITISH POSTGRADUATE MEDICAL SCHOOL, Ducane Road, W.12.

WEDNESDAY.—NOON, clinical and pathological conference (medical). 3 P.M., clinical and pathological conference (surgical).

THURSDAY.—2.15 P.M., Dr. Duncan White: radiological demonstration.

FRIDAY.—2 P.M., clinical and pathological conference (obstetrics and gynæcology).

Daily, 10 A.M. to 4 P.M., medical clinics, surgical clinics and operations, obstetrical and gynæcological clinics and operations.

HOSPITAL FOR SICK CHILDREN, Great Ormond Street, W.C.1.

THURSDAY.—2 P.M., Dr. W. W. Payne: The Uses of Oxygen in a Children's Hospital.

MAIDA VALE HOSPITAL FOR NERVOUS DISEASES, W.9.

THURSDAY.—3 P.M., Dr. Russell Brain: clinical demonstration.

EDINBURGH ROYAL INFIRMARY.

THURSDAY.—5 P.M., Lieut.-Colonel A. G. McKendrick: The Dynamics of Crowd Infections. (Honyman Gillespie lecture.)